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ICAR-CIPHET

News



ICAR - CENTRAL INSTITUTE OF
POST-HARVEST ENGINEERING & TECHNOLOGY
AN ISO 9001:2015 CERTIFIED INSTITUTION

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DIRECTOR SPEAKS

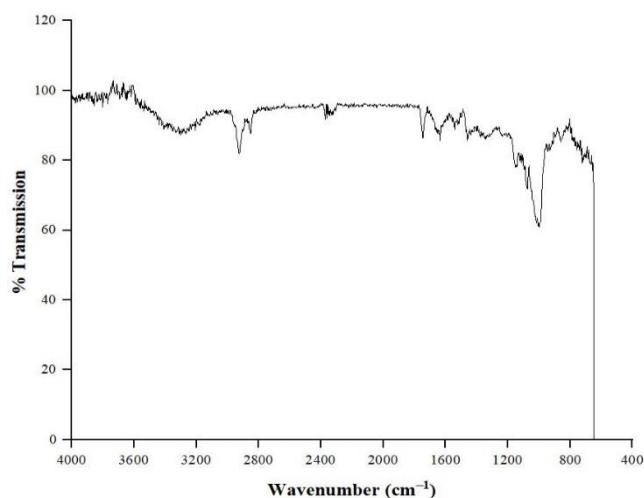


I am happy to share with you the salient work highlights ICAR-CIPHET has made in scientific and extension activities during this quarter. This issue covers the achievements in research on extraction of bioactive compounds from mango seed kernels, food adulteration detection technology using Near Infra-Red spectroscopy-based method for detection of maize flour in chick pea flour. Process optimization for extraction of bioactive compounds from black gram husk, process flow diagram of solvent extraction plant for mango kernel oil. A solar dryer that works entirely by solar energy using both thermal and electrical modules and a small-scale sanitization system for agricultural commodities using ultraviolet/ ozonation technique have also been developed. Research works undertaken in different centres of AICRP on post-harvest technologies such as the pilot plant for mahua flower candy and nectar, HAU green detopping machine for carrot, and rain water harvesting cum gravity based micro irrigation system etc. from AICRP on PEASM have also been included. During this quarter, the institute organized its 31st Institute Research Council meeting during 01-05 June, 2021. One ICAR-CIPHET technology titled 'Ozone based fruits and vegetable washer-cum-purifier (Ozo-C)' was licensed to M/s Ranjeeta's Agrifoods Health and Hygiene Private Limited, Odisha. A number of events and activities were also organized by the institute. International Yoga Day was also celebrated through online mode in collaboration with ICAR-CIAE, Bhopal on 21st June, 2021. The institute as well as KVK, Abohar has organized many awareness and training programmes for farmers and other beneficiaries. It is also to made a mention that a one-month online training programme was organized wherein 130 B. Tech. (Agril. Engg.) students from 4 SAU's attended the training. Furthermore, a master trainers training under PMFME scheme was also organized in online mode.

RESEARCH HIGHLIGHTS

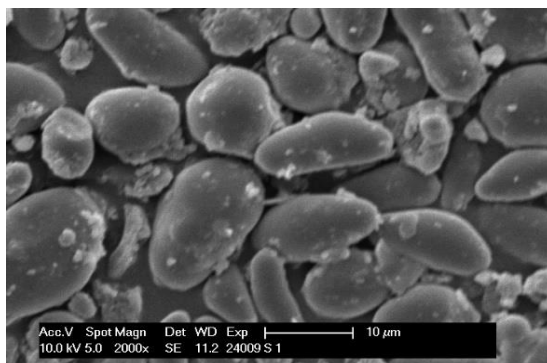
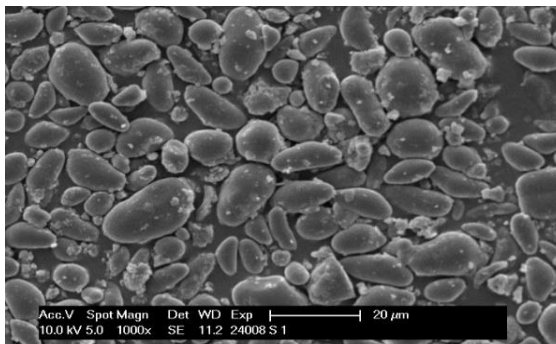
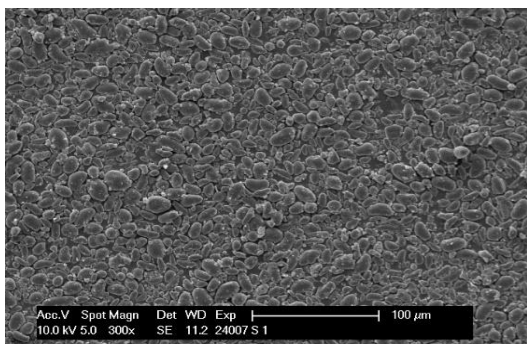
Characterization of mango seed kernel starch

The mango seed kernel starch was isolated by the optimized process and characterized for swelling power, water solubility index, purity, amylose and amylopectin content. Further, the starch was evaluated for FTIR spectra and surface morphology using scanning electron microscopy at 300x, 1000x and 2000x magnification power. The swelling power of mango seed kernel (MSK) starch was obtained 2.19, 6.77, and 9.07 g/g at 60±5°C, 80±5°C, and 95±5 °C respectively. Whereas the water solubility index of MSK starch was observed 2.14%, 6.68% and 9.66% at 60±5°C, 80±5°C, and 95±5 °C respectively. The isolated starch was 94.95% pure with 23.55% amylose and 76.45% amylopectin. The FTIR spectra of isolated MSK starch showed typical peaks at 3353 and 2925 cm⁻¹ that are characteristics of hydroxyl groups and of the C-H bonds of glucose residues present in starch, respectively. The absorption bands at 1146, 1016, and 933 cm⁻¹ were attributed to C-O stretching vibration of starch. The obtained spectrum confirmed the presence of starch residues in the sample. Scanning electron micrographs showed that the MSK starch granule had length of 8 µm to 18.5 µm and width of 5.4 µm to 10.6 µm with round to oblong shaped.



FTIR spectra of isolated mango seed kernel starch

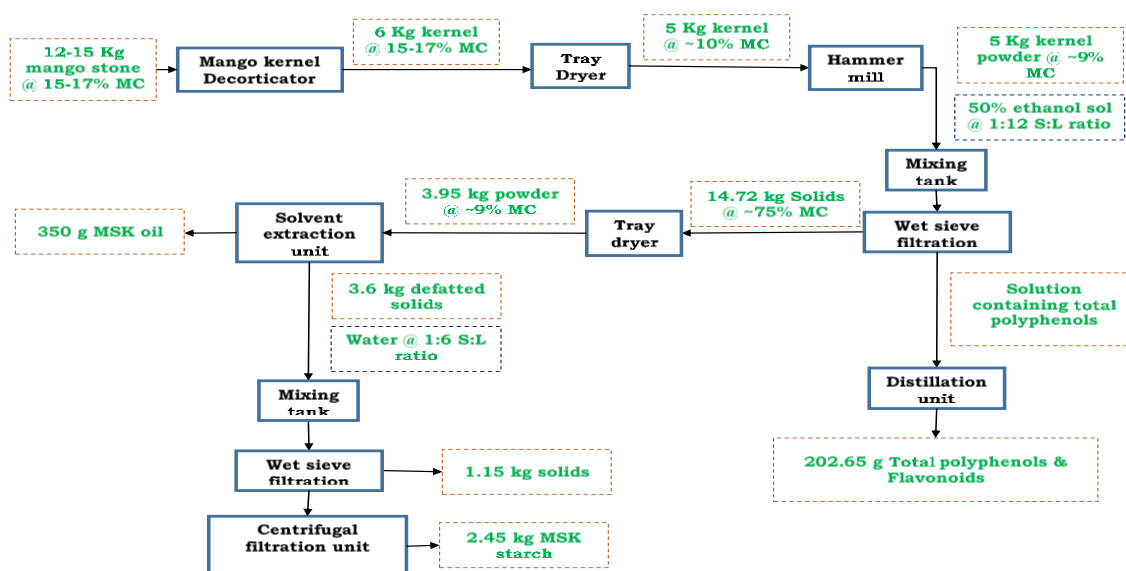
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Surface morphology of mango seed kernel starch using scanning electron microscopy at 300x, 1000x and 2000x magnification power.

Mass balance for extraction of bioactive compounds from mango seed kernels (MSK)

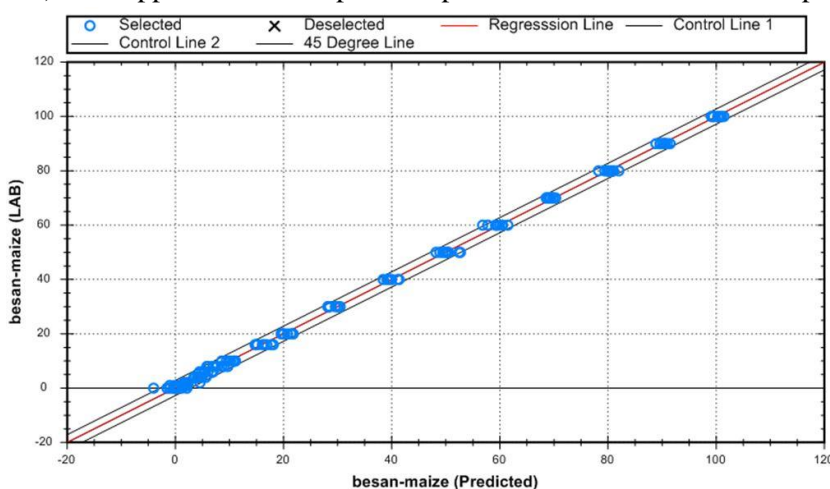
The mass balance for the extraction of bioactive compounds from mango seed kernels has been estimated. About 15.0 kg dried mango stones at a moisture content of 15-17% (w.b.) yield 6.0 kg mango kernels. The major unit operations involved in the process are the drying, size reduction, separation and distillation. An estimated amount of 202.65 g of total polyphenols and flavonoids, 350 g of MSK oil, and 2.45 kg of MSK starch are obtained after the processing of 15 kg mango stones.



Process mass balance for the extraction of bioactive compounds from mango seed kernels

Near Infra-Red spectroscopy-based method for detection of maize flour in chick pea flour

Chick pea flour or besan is important ingredient of many Indian dishes. It is often adulterated with inexpensive maize flour. To detect maize flour adulteration with besan a near infra-red spectroscopy (NIRS) based method has been developed. For this purpose, spectra of pure *besan*, pure maize flour and adulterated samples of *besan* with maize flour were acquired in Vis-NIR range (400-2498 nm). The spectral data was processed using scanning and mathematical pretreatments. Modified partial least squares regression (MPLSR) was applied to develop NIRS prediction model. The developed model showed coefficient of determination (RSQ) of 0.99. To test the goodness of fit of the developed model, cross validation was performed. The model was also validated using external data set with (RSQ) of 0.99 and standard error of prediction of 1.9. The developed method allows rapid and non-destructive detection and quantification of maize flour adulteration



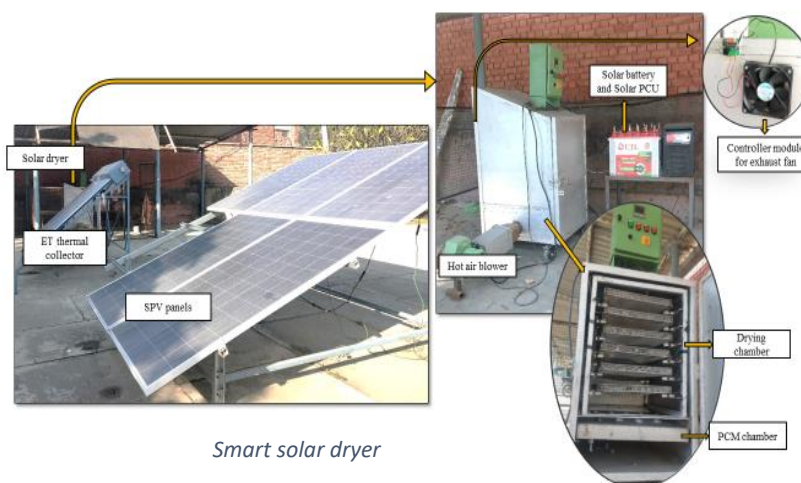
Prediction model for detection of maize flour in chick pea flour

Process parameters for extraction of bioactive compounds from black gram husk

Black gram (*Phaseolus mungo*) commonly known as *urd* is one of the important pulse crops in India. Milling of black gram produces around 9% husk and 16% *chuni* as co-product. The co-products are generally directed towards animal feed although there is immense potential as a source of valuable bioactive compounds with proven health benefits. Hence the present study was carried out to optimize the process parameters for extraction of bioactive compounds from black gram husk. The study was planned using the Box behnken design of RSM with three independent process variables with the help of design expert 8.0.5 software. Seventeen sets of experiments were performed following three independent variables viz., solvent (60-80%), extraction temperature (30-50°C) and extraction time (1-5 h). The husk was ground and passed through 60 mesh size sieve before its use for the study. The husk extracts, obtained from experimentation were analyzed for total phenol content, flavonoids, anthocyanins content and antioxidant activity (FRAP). The total phenol content ranged between 0.66 - 1.90 g GAE/100g. Anthocyanins content was in the range of 9.8 to 25.2 mg/100g and flavonoids content was from 52.48- 266.58 mg/100g. The antioxidant activity in terms of FRAP was observed to be in the range of 1.202 - 2.553 g/100g.

Smart solar dryer

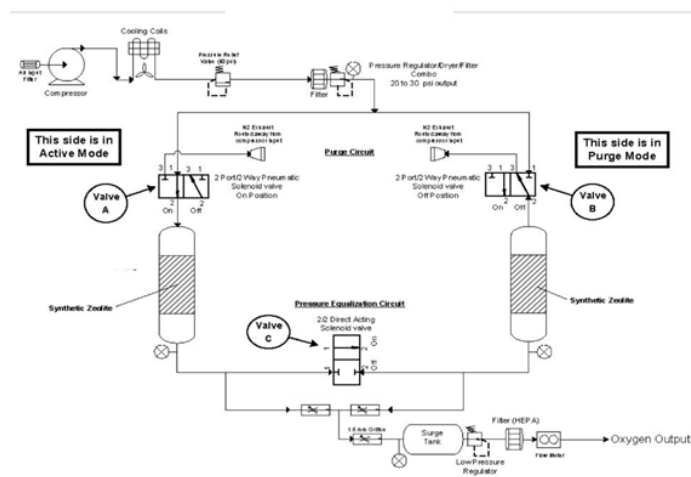
A dryer has been developed that works entirely by solar energy using both thermal and electrical modules. The thermal energy is collected through evacuated tube solar thermal collector whereas electrical energy is obtained through solar photovoltaic panels. Thermal storage is provided through paraffin wax (as phase change materials, PCM) and electrical energy is stored at solar battery. The designed capacity of the dryer is 10-15 kg of raw materials with 6 trays. A hot air blower which is powered by electrical energy derived from solar battery is also provided to supply heat when there is less or no radiation. The speed control of the exhaust fan is made in order to control the temperature of the drying chamber. Load cells are provided below each tray to indicate the weight of dry matter and thus prevent overheating. The drying chamber is made of mild steel with glass wool insulation of 2.5 cm to prevent heat loss from the chamber. A hole is provided at the bottom side for the hot air entrance through evacuated tube collector. The targeted temperature to be attained inside the drying chamber is kept as 55-65°C. The dimensions of the developed dryer are (77×65×96) cm at front and (77×65×121) cm at back side.



Oxygen concentrator

Oxygen concentrator has been developed which can be used in the process of ozone generation. The developed system is based on the principle of rapid pressure swing adsorption (PSA). It utilizes a molecular sieve to adsorb gases onto zeolite minerals at high pressure. This type of adsorption system is therefore functionally a nitrogen scrubber leaving the other atmospheric gases to pass through, leaving oxygen as the primary gas remaining. PSA technology is a reliable and economical technique for small to mid-scale oxygen generation. The developed oxygen concentrator has a molecular sieve with sodium-based zeolite, which has lower rate of nitrogen scrubbing (8ml.g⁻¹.min⁻¹), due to this it is

unable produce oxygen with higher concentration (>90%). However, nitrogen scrubbing efficiency of the developed system can be increased by using lithium based molecular sieve or zeolite, which has higher rate of nitrogen absorption (>22 ml.g⁻¹.min⁻¹) to produce high purity oxygen, due to its small bead size. The currently developed system will be upgraded for lithium-based sieves, which have rapid adsorption/desorption rates and ideal for removing nitrogen from atmospheric air and creating streams of high purity oxygen.



Line diagram for oxygen concentrator based on PSA principle



Developed oxygen concentrator

AICRP-PHET

Pilot plant for mahua flower candy and nectar

IGKV, Raipur Center has developed a pilot plant for mahua candy and nectar. The unit consists of stainless-steel steeping vessel, cooking vessel, perforated container, main frame, LPG stove, monoblock pump, pipe line and valve. The cooking vessel is heated by LPG stove for preparation of sugar syrup. The sugar syrup is transferred to the steeping vessel for dipping with mahua flower kept in the perforated container. The sugar syrup is transferred to the cooking vessel for further concentration and recirculation. Finally, the spent-up sugar solution is again transferred to the cooking vessel for preparation of mahua nectar adding other ingredients. Cost of the pilot plant is Rs. 70,000/-.

HAU green detopping machine for carrot

A continuous power operated green detopping machine for carrot was developed. The machine consists of a main frame made of mild steel in which the motor (1hp) is installed with chain sprocket drive for feed conveyor. The chain sprocket drive is connected with a conveyor that feed the carrot to the cutting blade assembly. The feed conveyor is also made of half circular shaped stainless-steel pipes or slots fixed on chain and sprocket that holds and feeds the carrots to cutting blade assembly at 22 RPM. Before cutting the green, both sides of carrots is required to hold firmly on feed



HAU green detopping machine for carrot

conveyor. Therefore, a belt and roller mechanism are installed near to the cutting blade assembly to fix carrots firmly on feed conveyor for proper cutting of greens. The cutting blade assembly is also made of stainless steel and have two cutting edges. It cut the green top part from the carrot and these detopped carrots are collected in the container outside of the machine. The carrots contact surfaces are made of food grade stainless steel SS304. The cutting blade assembly is kept covered for the safety of machine operator. The capacity of the machine is 180.35 kg/h and the cost is Rs. 40,000/-.

Ozonation system for sanitization of horticultural produce

A high capacity-compact ozonation treatment system has been developed by the PAU, Ludhiana centre, for effective sanitization of fresh produce. The system uses ozone gas produced by a L10G ozone generator (Corona discharge, Maximum output – 10g/h, 220 -240 V AC single phase power supply) and a separate water tank (20 L, food grade plastic) in which the water is ozonized prior to washing. The ozonized water is pumped into a treatment section above through fine spray nozzles to wash the produce for required amount of time. Since ozone gas is detrimental to human health, the treatment section has been designed air-tight to prevent possible leakage of gas into the surroundings. Around 10 kg of fresh produce can be sanitized in a batch with an exposure time to a maximum of 5 min. After the treatment, the produce is rinsed and washed with running water.

Sugarcane juice powder

Sugarcane juice yield obtained 55.00 per cent with pH 5.12 was decreased to pH 4.0 either by blending with kiwi fruit juice at the rate of 20 % or by addition of orthophosphoric acid. The maltodextrin was used as carrier (10 %) for spray drying at 170° C inlet temperature, 14ml/min feed



Ready to drink and spray dried Orthophosphoric acidified sugarcane juice



Ready to drink and spray dried Sugarcane juice +Kiwi juice

rate, 70 ml atomization with 19.00 % and 16.20 % yield respectively. The moisture content of powdered sugarcane juice was observed 2.5 -2.7 per cent while dispensability was found 91-92 percent. 16.6 percent powder reconstituted to sugar cane juice of parameters similar to fresh sugar cane juice (15°B TSS, 0.352 % acidity). The cost of production on laboratory scale was calculated Rs. 180 /200 gm powder with 20% profit can reconstitute six servings of 200ml capacity. This technology is developed by YSPUH&F, Solan.

Development of small-scale sanitization system for agricultural commodities using ultraviolet/ ozonation technique

As UV-C radiation is a known disinfectant for air, surfaces, objects and water that can help mitigate the risk of acquiring an infection and have been used extensively. The proposed activity was planned to develop a small-scale gadget for decontamination/sanitization of fresh food commodities at household level and test the



Small scale sanitization system for agricultural commodities

effectiveness of the developed gadget in checking the level of decontamination. Under this, design of sanitization system for fresh food commodities at household level using Ultraviolet (UV-C) was finalized. The effective volume capacity of UV-C based disinfectant system is 80 litres (50" x 50" x 45"). It consists of MS cabin as outer frame, SS mirror finished reflectors on inner side, SS wire mesh, rotor plate assembly including inbuilt gear box, LED display with timer for controlling UV-C light, DC 12 V charger and five UV-C tubes (15 W each) which uses the UV- band to disinfect the products exposed to it. The rotor plate assembly is provided for uniform exposure of UV- light to the product. The minimum exposure time of light is 12s and can be varied to check the effective exposure time to kill germs or inactivate microorganisms.

AICRP on PEASEM

Rain water harvesting cum gravity based micro irrigation system

ICAR-VPKAS, Almora center has developed rain water harvesting cum gravity based micro irrigation system. The developed system will not only harvest rain water but also will make use of harvested water for various irrigational systems like drip and micro sprinkler system. Gravity fed micro irrigation system was evaluated with rooftop water harvesting collected in LDPE film lined tank with capacity of 46 m³. The system was laid with 3 types of emitting devices i. e. drip tape, dripper and micro sprinkler. Available gravity head was 4.0 m at first terrace and increased to 13.8 m at the 7th terrace. The average emitter discharge was 1.2 and 1.5 lph in 1st and 2nd terrace with drip tape; 2.1 to 3.0 lph for 3rd to 6th terrace with drippers; and 18 lph for 7th terrace with micro-sprinklers. The emitter discharge was found linearly increasing in the subsequent terraces due to the increase in the available gravity head. This leads to application time to reduce to half as compare to the 1st terrace in order to maintain the uniformity and distribution efficiency. The emitter discharge varied between 19.8% for the first terrace to around 28.0% for lower terraces. Christiansen uniformity coefficient (CUC) varied between 86.86 to 92.01%. The distribution uniformity over the different terraces and respective laterals was within the range of 86.32 to 91.65%, which represent good performance of the system.



Rain water harvesting cum gravity based micro irrigation system

PUBLICATIONS

Research Paper

- Junia R, Kasana RC, Jain N and Aseri GK (2021). Guar (*Cyamopsis tetragonoloba* L.): A potential candidate for the rehabilitation of feldspar mine spoil amended with bioinoculants. *Indian Journal of Agricultural Research*, 55(2): 129-136.
- Kannaujia PK and Asrey R (2021). Effect of harvesting season and cultivars on storage behaviour, nutritional quality and consumer acceptability of strawberry (*Fragaria* × *ananassa* Duch.) fruits. *Acta Physiologiae Plantarum*, 43: 88. DOI: 10.1007/s11738-021-03262-w.

- Kannaujia PK, Kale S, Dukare A, Meena VS, Nath P, Jalgaonkar K, Mahawar M, Indore N, and Singh R K (2021). Variation in postharvest quality attributes of fresh cowpea (*Vigna unguiculata* L.) beans harvested from different crop mulching regime. *Legume Research*. DOI: 10.18805/LR-4602.
- Khatkar AB, Kaur A, Khatkar SK, Bala M, Maan S and Tyagi SK (2021). Valorization of ultrasound assisted restructured soy protein: impact on the quality characteristics of instant noodles. *LWT-Food Science and Technology*, 147. DOI: 10.1016/j.lwt.2021.111599.
- Kaur S, Thukral SK, Kaur P and Samota MK (2021). Perturbations associated with hungry gut microbiome and postbiotic perspectives to strengthen the microbiome health. *Future Foods Elsevier*, 100043.
- Kumar P and Saha D (2021). Drying kinetics of maize cob using mathematical modelling. *Journal of Agricultural Engineering*, 58(01):40-48. DOI: 10.52151/jae2021581
- Kumar P, Kaur C and Jambh HK (2021). Rheological, textural and technological modifications in wheat unleavened flatbread substituted with extruded finger millet. *Journal of Texture Studies*, 1–10. DOI: 10.1111/jtxs. 12595
- Mounika E and Ghodki BM (2021). Physical properties of Rambutan fruit (*Nephelium lappaceum* L.). *The Pharma Innovation Journal*, 10(4):1161-1163.
- Mridula D, Bhadwal S, Vishwakarma R K, Bala M and Kaswan S (2021). Co-extrusion of food grains and jaggery: optimization of process variables, PER and consumer acceptability. *Journal of Agricultural Engineering*, 58(1): 15-28.
- Mridula D, Saha D, Bhadwal S, Sonmati RK, Arora S and Bana M (2021). Nutritious dehulled sunflower meal-based muffins: optimization, quality characteristics and storage stability. *The Indian Journal of Nutrition and Dietetics*, 58 (2): 257-273.
- Sachdeva D, Sangha MK, Bala M, and Sharma S (2021). Purification, characterization and bioefficacy of legume lectins against mustard aphid. *Legume Research*. DOI: 10.18805/LR-4530.
- Shinoji KC, Krishnankutty MJ, Varghese E, Srivastava S, Rashmi I, Balakrishnan R and Gills R (2021). Empowerment of small holder women farmers through self-help groups in South-West India. *Indian Journal of Extension Education*, 57(2):31-37.
- Yadav A, Kumar N, Upadhyay A, Pratibha and Anurag RK (2021). Edible Packaging from fruit processing waste: a comprehensive review. *Food Reviews International*. DOI: 10.1080/87559129.2021.1940198.

Training Manual

- Bashir AA, Ghodki BM, Nidoni U, Mathad PF, Veena T and Muzaddadi AU (2021). Training manual on processing and value addition in millets and pulses, ICAR-CIPHET, Ludhiana, Punjab. pp: 1-10.
- Devi TB, Khwairakpam B, Joykumar Ng and Muzaddadi AU (2021). Processing and value addition of underutilized fruits of Manipur, ICAR-CIPHET, Ludhiana, Punjab. pp: 120.
- Singh R, Bala M and Sethi S (2021). Training manual on baking technology for entrepreneurship development, ICAR-CIPHET, Ludhiana, Punjab. pp: 1-67.
- Kumar V, Reddy VSG, Dawange SP and Muzaddadi AU (2021). Fish processing and value addition, ICAR-CIPHET, Ludhiana, Punjab. pp: 102.

Popular Articles

- Kotwaliwale N, Mann S and Dawange SP (2021). Doubling farmer's income innovation in agro processing. *Agriculture Today*. June, 64:65

Book Chapters

- Sethi S and Anurag RK (2021). Probiotic and prebiotic plant milk dairy foods. In book: *Probiotics and Prebiotics in Foods: Challenges, Innovations, and Advances*. Academic Press. DOI: 10.1016/B978-0-12-819662-5.00017-3
- Kumar V, Sukumar D and Muzaddadi AU (2021). Value addition to aquafoods: Why and How?. In Ed: Pathak N and Mogalaekar H S. *Recent Updates in Indian Fisheries Sector*. Narendra Publishing House, New Delhi. pp: 323-330. ISBN: 978-93-90611-83-6.

- Kumar V, Ahmad T and Muzaddadi AU (2021). Anti-hypertensive peptides from fishery by-products. Prospects and potential. In Ed: Pathak N and Mogalaekar H S. Recent Updates in Indian Fisheries Sector. Narendra Publishing House, New Delhi. pp: 360-370. ISBN: 978-93-90611-83-6.
- Kumar V, Ahmad T and Muzaddadi AU (2021). Application of fish processing by-products. In Ed: Pathak N and Mogalaekar HS. Recent Updates in Indian Fisheries Sector. Narendra Publishing House, New Delhi. pp: 331-339. ISBN: 978-93-90611-83-6.

Technical Bulletin

- Guru P N and Mridula D (2021). Safe storage of food grains. ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana (Punjab). Technical Bulletin No.: ICAR-CIPHET/Pub./2021-22/01. pp 32.

E-learning Material

- Sunita T, Kaukab S, Devi TB and Bembem K (2021). Light emitting diode in post-harvest quality preservation. <https://www.slideshare.net/ThongamSunita/led-in-post-harvest-quality-preservation>.

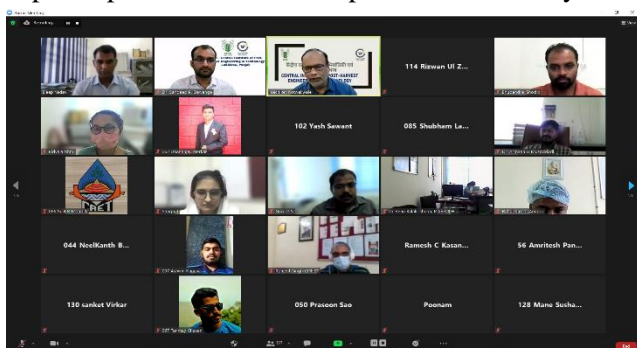
TRAININGS

Students Training

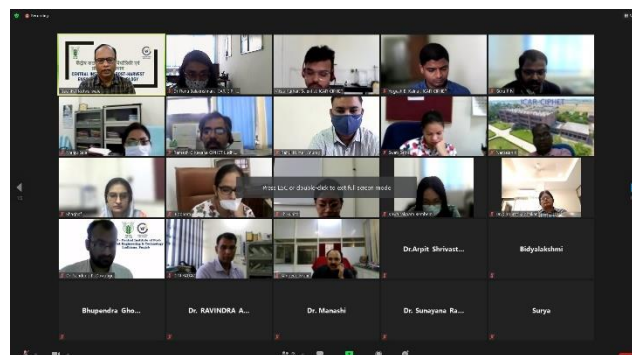
One-month online training programme of 130 B. Tech (Agril. Engg.) students from 4 SAU's (SKAUST- Kashmir, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth-Dapoli, IGKV-Raipur and MPUAT- Udaipur) was organized from 10 June to 9 July, 2021

Trainers Training

ICAR-CIPHET Ludhiana organized 5-day training of master trainers on Fat and Oilseed Product Processing under PMFME scheme during 29 June to 3 July, 2021. The training was attended by six participants from different parts of the country.



B. Tech. Student training

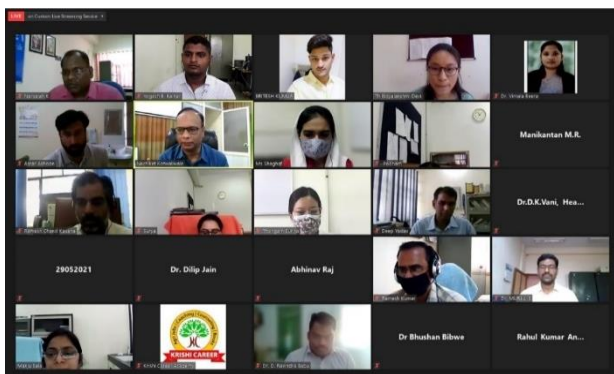


Training of Master Trainers

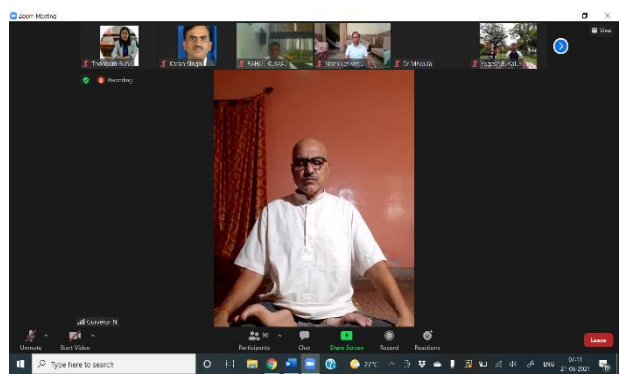
EVENTS/ ACTIVITIES

| No: | Event | Date |
|-----|--|--------------------------------------|
| 1 | Online meeting with representatives of UN World Food Programme officials working in Bhutan, National Post-Harvest Centre, Bhutan | 11 May, 2021 |
| 2 | Virtual symposium on Solar Energy in Post-Harvest Sector as a part of "Bharat Ka Amrut Mahotsav" | 29 May, 2021 |
| 3 | Institute Research Council Meeting | 01-05 Jun, 2021 & 24 Jun, 2021 |

| | | |
|---|---|--------------|
| 4 | Online workshop on Introductory session on Training Management Information System (TMIS) | 09 Jun, 2021 |
| 5 | Online lecture by Dr. Rishi Indra Singh Gill, Pr. Scientist (Agroforestry), PAU on ‘On-farm Boundary Plantation for Agro-Ecological Conditions of Punjab’ with national theme on ‘ <i>Har Med Par Ped</i> ’ | 19 Jun, 2021 |
| 6 | 7 th Annual International Day of Yoga in collaboration with ICAR-CIAE, Bhopal | 21 Jun, 2021 |
| 7 | भा. कृ. अनु. प.-सिफेट, लुधियाना ने रेडियो प्रसारण के दौरान राजभाषा हिंदी के वक्ताओं द्वारा उच्चारण एवं वैज्ञानिक आलेख पर चर्चा संबंधी अन्य सावधानियाँ विषय पर हिंदी की तिमाही कार्यशाला का आयोजन किया। | 26 Jun, 2021 |



Virtual symposium on Solar Energy in Post-Harvest Sector



7th Annual International Day of Yoga



Institute Research Council Meeting



Har Med Par Ped - Online lecture delivered by Dr. Rishi Indra Singh Gill

EXTENSION ACTIVITIES**Visits**

| Visitors Name & Address | No: of Visitors | Date of Visit | Facilitated by |
|--|-----------------|---------------|---|
| Department of Food Science and Nutrition, Community Science College and Research Institute, Madurai, Tamil Nadu (Virtual Tour) | 40 (S) + 2 (O) | 30 Apr, 2021 | Dr Sandeep P Dawange Dr Renu Balakrishnan Dr K Bembem |
| College of Fisheries, GADVASU, Ludhiana, Punjab | 19 (S) | 13 Jun, 2021 | Mr Vikas Kumar |

SWACHH BHARAT MISSION

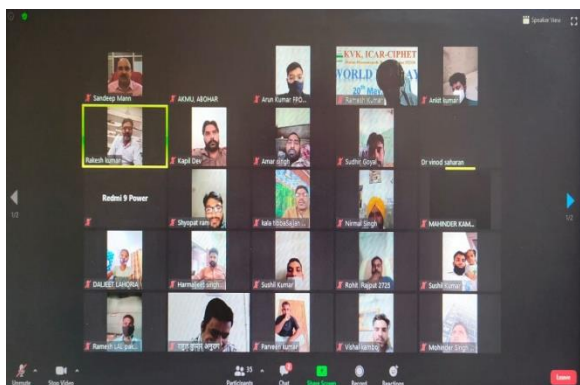
All the staff of ICAR-CIPHET, Ludhiana & Abohar participated in “Swachhta Pakhwada” under Swachhta Hi Sewa mission and campus/premises cleanliness activities.

OTHER ACTIVITIES

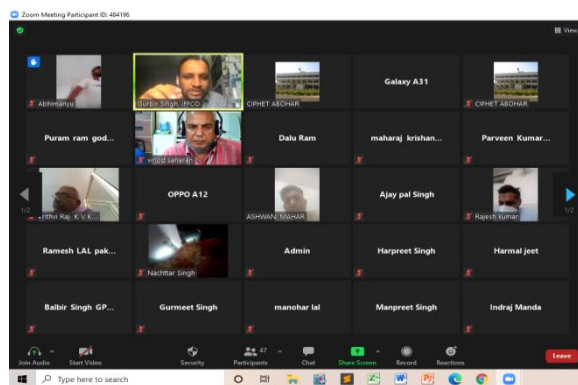
1. Dr K Narsaiah delivered a key note lecture titled “Engineering interventions for conversion of crop residues and horticulture by-products into feed” in Brainstorming Workshop “Entrepreneurship opportunities in crop residue utilization for livestock feeding” on 12 April, 2021 organized by ICAR-IGFRI, Jhansi (online)
2. Dr K Narsaiah delivered the lecture on “Microencapsulation of Bioactive Food Ingredients” on 22 April, 2021 under the three weeks National Certificate Course through online mode on “Post-Harvest Management of Horticultural Crops” organized by Center for Advanced Agricultural Science and Technology (CAAST) for Climate Smart Agriculture and Water Management (CSAWM), MPKV, Rahuri during 05-25 April, 2021.
3. Dr K Narsaiah participated as Member of panel for discussion in webinar on “Food & Nutritional Security in Changing Climate and Disaster Scenario” 29 April, 2021 organized by NIDM, New Delhi
4. ICAR-CIPHET staff observed Anti-Terrorism Day via web on 21 May, 2021
5. A brainstorming session on “Capacity building of agricultural extension professionals to promote agro-processing” was organized on 23 Jun, 2021 through virtual mode. Dr. K. Alagusundaram, DDG (Agril. Engg.), ICAR, New Delhi and Dr. A. K. Singh, DDG (Agril. Extension), ICAR, New Delhi chaired the session. Director, ICAR-CIPHET, Directors of ATARI and project team members attended the session and guided for further actions.

KVK ACTIVITIES

| Sr. No: | Event | Date | No: of Participants |
|---------|--|--------------|---------------------|
| 1 | Webinar on World Bee Day | 20 May, 2021 | 40 |
| 2 | Virtual training on Drip Irrigation and Fertigation management in fruits crops | 07 Jun, 2021 | 43 |
| 3 | Virtual training on Cultural Practices Production on Kharif Crops | 11 Jun, 2021 | 24 |
| 4 | Webinar on Awareness Campaign on Balanced Use of Fertilizers | 18 Jun, 2021 | 32 |
| 5 | Webinar on Management of Foot and Mouth Disease (FMD) in Cattle | 30 Jun, 2021 | 32 |



Webinar on World Bee Day



Drip Irrigation and Fertigation management in fruits crops

PERSONALIA

Promotion

Sh. Avtar Singh, Assistant promoted to the post of Assistant Administrative Officer, ICAR-CIPHET, Ludhiana w.e.f. 29 Jun, 2021.

Transfer

Sh. Ajay Kumar, LDC has been transferred from ICAR-CIPHET, Abohar to ICAR-CIPHET, Ludhiana w.e.f. 14 Jun, 2021.

PARTICIPATION IN CONFERENCE/ SEMINAR/ MEETING

PROGRAMME ATTENDED

| Name | Title of Programme | Organized by | Duration |
|---|---|------------------------|--------------------|
| Dr. Sandeep P. Dawange Dr Th. Bidalakshmi Devi | Webinar on 12th Batch Generic Online Training Course in Cyber Security | MeitY, GoI | 29 Apr, 2021 |
| Dr RK Singh Dr K Narsaiah Dr RC Kasana | Online Management Development Programme on Leadership Development | ICAR-NAARM, Hyderabad | 14 - 25 June, 2021 |
| Dr AU Muzaddadi | Webinar on Basics of Thermal Process Validation –Food | Ellab, Amsterdam | 17 June, 2021 |
| Er Shaghaf Kaukab Er Thongam Sunita | Webinar on Cold Chain Management | ASSOCHAM INDIA | 17 June, 2021 |
| Dr AU Muzaddadi Mr Vikas Kumar | Webinar on Sustainable Fishing: Entrepreneurship Development in Fisheries Sector, Showcasing Opportunities, Challenges and Best Practices for Start-Ups | ICAR-NIVEDI, Bengaluru | 18 June, 2021 |
| Dr Th. Bidalakshmi Devi | Lecture on Publication in International Journals | CCS HAU, Hisar | 23 June, 2021 |

TRANSFER OF TECHNOLOGY

| Technology | Licensed to | Licensing Fee (Rs.) | Date of Licensing |
|--|--|---------------------|-------------------|
| Ozone based fruits and vegetable washer-cum-purifier (Ozo-C) | M/s Ranjeeta's Agrifoods Health and Hygiene Private Limited, LIG-5, Flat No-201, Debashram, SBI Colony, Kesura, Bankuala, PS-Sahid Nagar, Bhubaneswar, Khordha, Orissa | 20,000/- | 12 May, 2021 |

SECTORIAL NEWS

World Food Safety Day 2021 - Safe food now for a healthy tomorrow

World Food Safety Day (WFSD) celebrated on 7 June 2021 aims to draw attention and inspire action to help prevent, detect and manage foodborne risks, contributing to food security, human health, economic prosperity, agriculture, market access, tourism and sustainable development. This year's theme, 'Safe food today for a healthy tomorrow', stresses that production and consumption of safe food has immediate and long-term benefits for people, the planet and the economy.

<https://www.who.int/news-room/events/detail/2021/06/07/default-calendar/world-food-safety-day-2021---safe-food-now-for-a-healthy-tomorrow>

Bühler & Hosokawa Alpine to collaborate on sustainable proteins

Swiss Bühler Group and Hosokawa Alpine Group from Germany have signed a strategic collaboration agreement to accelerate and strengthen the production of healthier and sustainable plant protein solutions. Together, the companies will provide customers with the most efficient value chain for pulses being processed into protein ingredients.

<http://www.fnbnews.com/Food-Processing/bhler--hosokawa-alpine-to-collaborate-on-sustainable-proteins-64292>

56% of Indian families report digestive health issues, reveals survey by Aashirvaad Atta

The findings of the survey by Aashirvaad Atta suggest that 77% Indian mothers consider digestive health to be extremely important while 56% mothers think their families suffer from digestive health issues. The study found that more than 50% Indian families report suffering from 2-3 digestive health issues. Gas, acidity and indigestion were found to be amongst the top 3 issues as more than 50% respondents reported suffering from at least one of these three.

LED treatment, an effective way to delay the senescence and maintain the quality of the pakchoi

Red and violet light emitting diode (LED) treatments on the postharvest quality and biodiversity of fresh-cut pakchoi (*Brassica rapa* L. Chinensis) showed that red and violet LED irradiation (15 μ mol/(m² · s)) significantly inhibited the changes of sensory evaluation, increased the content of chlorophyll, antioxidant enzymes, and prolonged the shelf life of pakchoi at 4 °C.

https://www.postharvest.biz/en/news/80879/_id:80879/

Honey makers collaborate to form 'honey alliance'

Indian honey makers including Dabur, Patanjali, Baidyanath, Hamdard Laboratories and Hitkary, in addition to advisory firm Consocia, have collaborated to form an India Honey Alliance (IHA), which they said was aimed at dealing with adulteration and to provide direction to implement best industry practices.

<https://indiaccsr.in/what-is-india-honey-alliance/>

FSSAI makes BIS certification mandatory for packaged drinking water companies
The Food Safety and Standards Authority of India (FSSAI) has made it mandatory for manufacturers of packaged drinking water and mineral water to take BIS certification for obtaining license or registration from the regulator.

https://economictimes.indiatimes.com/industry/cons-products/food/fssai-makes-bis-certification-mandatory-for-packaged-drinking-water-companies/articleshow/81718161.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Dieting and its effect on the gut microbiome

Researchers from Charité - Universitätsmedizin Berlin were able to show for the first time that a very low-calorie diet significantly alters the composition of the microbiota present in the human gut. The researchers report that dieting results in an increase of specific bacteria - notably *Clostridioides difficile*, which is associated with antibiotic-induced diarrhea and colitis.

<https://www.sciencedaily.com/releases/2021/06/210623141657.htm>

CIPHET IN NEWS

केवीके-सीफेट की 15 मई तक कपास नरमा की बुवाई की सलाह

अबोहर, 4 मई (धर्मवीर) : कृषि विज्ञान केंद्र सीफेट ने किसानों को कोरोना महामारी के बीच एक दूसरे से पर्याप्त दूरी व दो परतों वाला मास्क पहनकर कृषि कार्य करने की सलाह दी है। कृषि विज्ञान केंद्र सीफेट अबोहर के प्रभारी डा.



डा. रमेश कुमार

रमेश कुमार ने यह भी सलाह दी कि गर्मी के मौसम में तापमान बढ़ने के कारण फल वृक्षों व नए लगाए फल वृक्षों को निरंतर सिंचाई करें। उन्होंने इसी महीने 15 मई तक कपास नरमा की बुवाई पूर्ण करने का

आह्वान किया। उन्होंने कहा कि जो किसान नया बाग लगाना चाहते हैं वे तीन बाय तीन फीट के गड्ढे खोदकर तैयार कर लें ताकि गर्मी में समय रहते मृदा भूमि का निर्जलीकरण किया जा सके। गेहूँ एवं अन्य फसलों को सुखाकर नमी रहित जगह पर भंडारण करें, जिससे इन्हें कीड़ों से बचाया जा सके। उन्होंने किसानों से आपस में पर्याप्त दूरी मास्क लगाकर रखने तथा अनावश्यक कार्य हेतु घर से न निकलने का आग्रह किया।

दैनिक सवेरा Wed, 05 May 2021
epaper.dainiksaveratimes.org/c/60244

सीफेट-केवीके में खरीफ फसलों पर वैबिनार

अबोहर, (धर्मवीर) : कृषि विज्ञान केंद्र-सीफेट द्वारा खरीफ फसलों के उत्पादन हेतु उन्नत कृषि क्रियाओं पर वैबिनार का आयोजन किया गया। इस मौके पर सीफेट प्रभारी डा. रमेश कुमार ने किसानों से अधिक से अधिक वैबिनार से जोड़कर नई तकनीकों की जानकारी प्राप्त करने के लिए प्रोत्साहित किया। एसीटीईओ पृथ्वीराज ने किसानों से कपास की उन्नत कृषि क्रियाओं की जानकारी दी। फसल में सिंचाई, कीड़े मकौड़े, खरपतवार रोकने संबंधी जानकारी दी।



डा. रमेश कुमार

दैनिक सवेरा Sat, 12 June 2021
epaper.dainiks

उर्वरकों के संतुलित उपयोग पर जागरूकता अभियान पर वैबिनार

अबोहर (धर्मवीर) : उर्वरकों के संतुलित उपयोग पर जागरूकता अभियान पर वैबिनार शुक्रवार को केवीके, आईसीएआर-सीफेट, अबोहर द्वारा आयोजित किया गया। इस प्रशिक्षण में आसपास के विभिन्न गांवों के लगभग 32 किसानों और अधिकारियों ने ऑनलाइन माध्यम से भाग लिया। केवीके, आईसीएआर-सीफेट के प्रभारी डॉ. रमेश कुमार ने किसानों का स्वागत किया और कम उर्वरक के महत्व के बारे में बताया। गुरबीर सिंह, फील्ड ऑफिस इंफोर्मेशन के कम उपयोग पर विस्तार से चर्चा की। सीफेट के वैज्ञानिक डॉ. सखाराम काले ने ड्रिप सिंचाई के माध्यम से फर्टिगेशन पर व्याख्यान दिया। डॉ. महेश कुमार वैज्ञानिक सिफेट, अबोहर ने जैविक खाद के महत्व पर विस्तार से चर्चा की। डॉ. विनोद सहारन सीटीओ केवीके सीफेट, अबोहर ने उर्वरक और फसल अवशेष प्रबंधन के विवेकपूर्ण उपयोग के लिए 43आर दृष्टिकोण पर व्याख्यान दिया।



सीफेट के प्रभारी डॉ. रमेश कुमार

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A 5 day training programme for Master Trainers begins at ICAR-CIPHET, Ludhiana

epaper.dainiks Jun 28, 2021 01:52



ICAR-CIPHET in collaboration with IIFPT, Thanjavur inaugurated a training of master trainers on Fat and oilseed product processing. The 5 day training is designed to train the master trainers of One District One product (ODOP) initiative under Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) scheme. Professors from four states are participating in the training programme and will be training entrepreneurs in field of fats and oilseed products processing under PMFME.

During the inaugural session, Dr. Nachiket Kotwalwale, Director, ICAR-CIPHET Ludhiana said that the training programme is crucial in enhancing level of oil processing and utilisation of oilseed products through development of entrepreneurship in production catchment. The PMFME is flagship programme under the Atmanirbhar Bharat Abhiyan with the aim to enhance the competitiveness of existing individual micro-enterprises in the unorganized segment of the food processing industry and promote formalization of the sector.

कृषि विज्ञान केंद्र सीफेट में विश्व मधुमक्खी दिवस पर वैबिनार

● शहर में रोग प्रतिरोधक क्षमता बढ़ाने की ताकत : वैज्ञानिक

अबोहर, 20 मई (धर्मवीर) : कृषि विज्ञान केंद्र-सीफेट अबोहर में विश्व मधुमक्खी दिवस पर एक दिवसीय ऑनलाइन वैबिनार आयोजित किया गया। इस कार्यक्रम को आयोजित करने हेतु सीफेट केवीके के प्रभारी डा. रमेश कुमार ने मधुमक्खी पालन को महत्व के बारे में बताया और विशेष रूप से बागवानी फसलों में मधुमक्खी के

जानकारी दी। उन्होंने बताया कि मधुमक्खियां हमारे जीवन के लिए बहुत महत्वपूर्ण हैं। मधुमक्खियों के महत्व के बारे में जानकारी फैलाने के लिए और उन्हें खतरों से बचाने के लिए हर साल 20 मई को मधुमक्खी दिवस मनाया जाता है। एसीटीईओ पृथ्वीराज ने मधुमक्खी पालन को विस्तार जानकारी किसानों को दी। क्वी सीटीओ डा. विनोद सहारन ने सरकार द्वारा दी जाने वाली सहायता और मधुमक्खी पालन पर होने वाले खर्च पर विस्तार जानकारी दी।

शहर को आर्थिक महत्ता के बारे में जानकारी देते हुए कहा कि प्राचीन समय से इसका प्रयोग रोग-प्रतिरोधक क्षमता को मजबूत करने के लिए किया जाता रहा है। सीफेट लुधियाना के वैज्ञानिक डा. राहुल अद्वैत ने शहर में मिलानद को फसल में से निराले के लिए शहर के गांवों में भी जानकारी देना शुरू किया है। इस कार्यक्रम में करीब 40 किसानों ने ऑनलाइन भाग लिया और सभी किसानों ने वैबिनार में हिस्सा लेकर अपने-अपने अनुभवों को भी

फल उत्पादन में ड्रिप सिंचाई व फर्टिगेशन पर वैबिनार

अबोहर (कथूरिया) : कृषि विज्ञान केंद्र व सीफेट अबोहर द्वारा फल फसलों में ड्रिप सिंचाई और फर्टिगेशन पर वैबिनार का आयोजन किया गया। इस प्रशिक्षण में आसपास के विभिन्न गांवों से लगभग 43 किसानों और कृषि महिलाओं ने ऑनलाइन भाग लिया। कृषि विज्ञान केंद्र व सीफेट के प्रभारी डा. रमेश कुमार ने किसानों का स्वागत किया और कृषि व बागवानी फसलों में ड्रिप सिंचाई और फर्टिगेशन के महत्व के बारे में संबोधित किया और किसानों को प्राकृतिक संसाधनों (पानी) की बचत के लिए ड्रिप सिंचाई को अपनाने का सुझाव दिया। सीटीओ डॉ. विनोद सहारन ने किसानों को फल फसलों में ड्रिप सिंचाई और फर्टिगेशन डिजाइन और घुलनशील उर्वरकों के बारे में विस्तार से जानकारी दी।

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