

ICAR-CIPHET NEWS



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FROM DIRECTOR'S DESK



I am extremely delighted to present the ICAR-CIPHET Quarterly Newsletter for January-March, 2019. The first issue of the newsletter covers research outputs of this quarter- improved flaking system, factors influencing starch yield from mango seed

kernels, consumer acceptability studies of convenient breakfast products etc. I am extremely happy to inform that a commodity interest group has been established under the guidance of ICAR-CIPHET in Nawanshahr District of Punjab. I am also delighted to share that during this period, a patent has been granted for "Method of predicting maturity stage and eating quality of mango". The institute has organized the Research Advisory Committee (RAC) meeting and Institute Management Committee (IMC) Meeting to review the R&D activities of the institute. The institute has successfully conducted one Model Training Programme, three EDPs and five farmer's training programme. The institute also trained 46 students from eight different colleges across the country during this time. The institute is highly involved in extension activities and has participated in five exhibitions/ *melas* to showcase and demonstrate the technologies developed by the institute.

Dr. RK Singh



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RESEARCH HIGHLIGHTS

- **Development of improved flaking system for small scale production of rice flakes**

Rice Flaking Machine of capacity 80 kg/h is designed and developed for small scale entrepreneurs. The process of flaking involves soaking and roasting followed by flaking in machine. The machine is capable of dehusking and flaking of paddy. The overall dimension of the machine is 125x50x50 mm and consists of three sets of rollers: 1st set of rubber rollers with a diameter of 50.8 mm, 2nd set of stainless steel rollers with a diameter of 50.8 mm and 3rd set of stainless steel rollers with a diameter of 90 mm mounted on the shaft. Stainless steel plates have been fitted on the side of rollers to prevent the dropping of paddy during operation. A 5 hp AC motor is fitted to enable proper flaking of paddy. A small blower (diameter 76 mm) is provided below the dehusking rollers with a speed controller to blow the paddy husk after the dehusking operation. Provision of stainless steel square sieve (dimension of 4x4 mm) have also been made to separate the flaked rice from the un-flaked paddy. The recovery of rice flakes from MTU-1010 paddy variety was found to be 64.25% (considering 22% husk) after single pass which increased to 68.12% after 2nd pass. The broken rice flakes were 8%.

- **Screening of significant factors influencing starch yield from mango seed kernels:**

Plackett-Burman design was used to screen out the most important factors that influence starch yield from mango seed kernel. Nine factors i.e. particle size, solid-liquid ratio, concentration of NaOH, soaking temperature, soaking time, stirring rate, sonication time, mixing solid-liquid ratio using three dummy variables were used. Starch yield was used as response value (%). Statistical analysis showed that particle size, soaking temperature, soaking time and mixing solid-liquid ratio had a confidence level greater than 95%, which indicated these factors displayed significantly ($p < 0.05$) positive effects on starch isolation. The remaining factors had p-values of more

than 0.05 and were considered not to be significant. The coefficient R^2 of the first-order model was 0.9929, indicating that up to 99.29% of the test data differences could be explained by this model. The coefficient R^2_{adj} (equal to 0.9541) was close to R^2 , which could better reflect the model's explanatory power. The probability value of the model 0.03 indicates that the model is significant at ($p > 0.05$).

- **Development of black rice extrudates**

Black rice extrudates of *Chakhao poireiton* variety of black rice was developed using RSM. Twenty experimental runs were made and evaluated for important quality parameters. Expansion ratio (ER) ranged from 2.43 to 3.41, bulk density (BD) ranged from 0.13 to 0.35 g/cm³, Water solubility index (WSI) ranged from 1.48 to 8.19 per cent and water absorption index (WAI) ranged from 21.60 to 64.00. Moisture, fat and ash content ranged from 8.1 to 11.7, 0.7 to 0.77 % and 0.02 to 0.08 per cent respectively. Pasting properties of the flour of extrudates were also studied using Rapid Visco Analyser (RVA). Final viscosity and set back values of the extrudates were relatively low in comparison to that of the raw materials due to the starch gelatinization that has already occurred during the extrusion process. Total anthocyanin content (TAC) of black rice extrudates estimated following the methodology of Abdel-Aal and Huel (1999) ranged from 41.61 to 81.40mg/100g, total phenolic content (TPC) ranged from 206.65 to 278.85 mg GAE/100g and percent RSA of black rice extrudates ranged from 26.46 to 85.11. Extrusion at high temperature and at high screw speed reduced the TAC, TPC and percent RSA of black rice extrudates. However, the extent of reduction is higher at lower feed moisture, higher barrel temperature and higher screw speed. Sensory attributes, analysed using a 9-point hedonic scale indicated that the extrudates were acceptable to the panellist as indicated by the score above 6 for all the attributes.



Photo: Black rice extrudate

- **Consumer acceptability studies of convenient breakfast products developed using sprouting and extrusion technology:**

Consumer acceptability studies of developed optimized products such as (i) Pasta with sprouted Bengal gram, sprouted wheat and semolina, (ii) Pasta with sprouted green gram, sprouted pearl millet (iii) Noodles prepared with sprouted Bengal gram, mint and wheat flour and (iv) Sprouted green gram flakes has been conducted during Kisan Mela at PAU, Ludhiana. The study was conducted among 75 participants of varied age group ranging from 12 to 60 years for each product. Keeping in view the background of participants (age group and mother tongue) the performa for consumer acceptability studies were prepared in three different languages (Hindi, English and Punjabi). The pasta and noodles samples were cooked and added with condiments and vegetables. The samples were maintained in hot conditions for appropriate results. The flakes were ready-to-eat and served after coating with spices and condiments. The participants were informed about the product and its positive nutritional aspects and asked to rate on the 9 point hedonic scale for overall quality. The average overall acceptability scores on 9 point hedonic scale for above mentioned four products were found to be 7.8, 8.0, 8.2 and 7.9 respectively.

- **Processing and Value Addition of Agricultural Produce for Enhancing Farmers income and Employment in Production Catchment**

A Commodity Interest Group (CIG) of 10 progressive beekeepers was instituted and the

members of the group were trained in scientific honey processing. They were also guided in the area of marketing of their produce and were sensitized to tap the potential of direct marketing. Now, the farmers are processing their raw honey in the honey processing unit established at Mahalon village. They are now marketing their produce directly to the consumers under the brand name “Happy Honey” and “Fresh Honey” for a price of Rs. 200/kg. The farmers were also guided for obtaining AGMARK certification.



- **Development and management of National Database on NARES Technologies in Post-Harvest Sector**

A format was designed for collection and compilation of commodity wise information related to various post-harvest machines and equipment developed in the National Agricultural Research and Extension System. Information was collected on different machineries/equipment's used in various post-harvest operations including their capacity, dimensions, efficiency, approximate cost and source of the manufacturer/supplier. The prepared format was sent to ICAR institutes and SAU's for collecting information regarding the post-harvest technologies. Technical information was also collected through secondary sources. Technology inventory of around 167 post-harvest machineries (43 in cereals, 15 in pulses, 10 in oilseeds, 47 in horticultural sector, 7 in plantation sector, 9 in tubers, 30 in spices & condiments, 4 in sugarcane and 2 in others such as Honey) available in the NARES system were prepared in the prescribed format. Effort was also made to identify suitable software for developing database during this period.

- **Development of methodology for studying the present status of processing and value addition of cereals, pulses and oil seeds in Punjab.**

A preliminary study was conducted to chalk out the strategies for studying the present status of processing and value addition among farmers in Punjab. Thus, an exploratory research methodology was formulated to identify the entrepreneurs/FPO's/SHG's/FPC's who are involved in farming and processing their own produce, who procure raw material directly from farmers and process, and who provide custom hiring service of processing to farmers and individual farmers involved in processing. The methodology also aims to study the extent of adoption of different processing machines and equipment by the farmers. Their opinion about processing and value addition and the additional facilities/ equipment/ machineries they feel is required for expanding their business will also be documented. The extent of processing of various cereals, pulses and oilseed crops and the products developed at the farm level will also be analysed in the study.

- **Testing of Processing Machineries at PHMETC:**

During this period, four machineries (i) Mini Rice Mill (ii) Flour Mill (Horizontal) (iii) Flour mill (Vertical) and (iv) Mini Oil Expeller were tested and their commercial test reports were issued

PATENTS

Patent No. 309470

A patent on 'Method of predicting maturity stage and eating quality of mango' with patent no. 309470 has been granted to a team of investors led by Dr. SN Jha, Dr. K Narsaiah, Dr. P Jaiswal, and Dr. Ramesh. Kumar of ICAR-CIPHET.

EVENTS

Research Advisory Committee (RAC) Meeting: 21st RAC meeting of ICAR-CIPHET was held on 5-6 February, 2019 at ICAR-CIPHET, Ludhiana under the chairmanship of Prof. Anwar Alam, Former DDG (Engg.) ICAR. The other members of the committee present for the meeting were Dr. Nabarun Bhattacharya,

Director, C-DAC, Kolkata; Dr. Vasudeva Singh, Former Chief Scientist, CSIR-CFTRI, Mysore; Dr. S. Ganapathy, Prof. & Head, TNAU, Coimbatore; Dr. S. K. Dash, Dean, COAE&T, OUAT, Bhubaneswar; Dr. R. K. Singh, Director, ICAR-CIPHET, Ludhiana; Dr. S. N. Jha, ADG (PE), ICAR and Dr. K. Narsaiah, National Fellow & Principal Scientist, ICAR-CIPHET. During the meeting, Director, ICAR-CIPHET presented the major achievements of the institute since last RAC. HoD's of all the divisions presented the divisional progress under R&D projects and other activities for the period.



Chairman and members of Research Advisory Committee (RAC) Meeting in Dias.

National Productivity Week was celebrated during 12-18 February, 2019 with the theme 'Circular Economy for Productivity and Sustainability in Agriculture'. Under this, programmes like slogan and poster competition were organized and employees of the institute have actively participated in the events. A special talk was also organized on "Stress Management for enhancing productivity in R&D organization" by Sh Sagar Kashyap, Professional Consultant and Motivational Speaker, 'Join 4 Smiles'- a group for sharing smiles, Ludhiana during this week.

Institute Management Committee (IMC) Meeting was held on 28 March, 2019 at ICAR-CIPHET, Ludhiana under the chairmanship of Dr. R. K. Singh, Director (Acting) with other members being Dr. S. N. Jha, ADG (PE), ICAR; Dr. M. K. Garg, Prof. CCSHAU, Hisar; Dr. R. K. Jhorar, Dean, CCSHAU, Hisar; Sh. R. S. Dhillon, Farmer; Dr. H. S. Oberoi, Head, PHT Division, ICAR-IIHR, Bengaluru; Dr. A. K. Thakur,

Principal Scientist, ICAR-NIRJAFT, Kolkata; Er. Amanpreet Singh, Representative of Director of Agriculture, Govt. of Punjab; and SAO, ICAR-CIPHET. The IMC members visited the laboratories and other facilities of the institute like Makhana Processing Pilot Plant, Agro Processing Center. They were also shown the latest equipment's and technologies developed by the institute.



Institute Management Committee (IMC) Meeting at ICAR-CIPHET



Members of the Institute Management Committee visiting Makhana processing pilot plant

EXTENSION ACTIVITIES

TRAINING PROGRAM ORGANIZED

Officer's Training

Model Training Course sponsored by Directorate of Extension, MoA&FW, Government of India on "Processing, Value addition and Entrepreneurship Development in Post-harvest sector" for state government officers was organized at ICAR-CIPHET from 14-21 January, 2019. 18 state government officers from different

parts of the country participated in the training programme.



String (Left to Right): Renu Balakrishnan, Rahul K. Amrarg, Yogesh Kumar, A. K. Divri, R. K. Singh, Sandeep Mann, Ranjit Singh, Sandeep P. Dawange, K. Ramesh, Vikas Kumar
Standing (Left to Right): Harish Dewangan, Ashay Agrawal, Sanjay Kumar, Taroon Salil, Jitendra Kumar Nandev, Rishabh Vohra, Jashagreet Singh, Renu, Jitendra Singh, Kunaljeet Singh Sodhi, Uttam Lal, Neeraj, Ravikant V. Wansik, Mrs. Nivedita F. Shete, Ms. Deepali M. Mishra, Vikram Chorghotra, Vishar Vir Singh Jambwal, Amit Pratap Singh, Yogesh B. Kalnar

Entrepreneurship Development Programme (EDP)

- An Entrepreneurship Development Programme (EDP) was organized for 05 farmers from Amravati, Maharashtra during 12- 14 March, 2019.
- Entrepreneurship Development Programme was organized for progressive farmer from Sri Ganganagar, Rajasthan on 'Oat Processing and Value Addition' from 18-19 January, 2019. Awareness cum training program on Groundnut/Soybean Processing was organized at ICAR-CIPHET, Ludhiana for budding entrepreneurs during 16-17 January, 2019 under ABI Project for 30 participants.
- Two days training on 'Drying of apple slices' was organized in the Food Grains and Oilseeds Division during 25-26th Mar, 2019 at ICAR-CIPHET, Ludhiana for three entrepreneurs from Himachal Pradesh.

Farmers Training

- ToT Division organized a training on "Post-harvest management of agricultural produce" for 20 farmers from Jambner, Jalgaon District (Maharashtra) during 7-11 January, 2019. The programme was coordinated by Dr. Sandeep Mann and Mr. Vikas Kumar
- ToT Division organized a training on "Food Processing and Value Addition" for 25 farmers from Bilaspur, Shimla, Himachal Pradesh during 18- 22 February 2019. The programme was coordinated by Dr. Sandeep Mann and Er. Yogesh Kalnar.

- ToT Division organized a training on “Processing and Value Addition of Cereals, Pulses and Oilseed Crops” for 25 farmers from Biloli, Nanded District, Maharashtra during 25 February – 01 March 2019. The programme was coordinated by Dr. Sandeep Mann, Dr. K. Bembem and Mr. Vikas Kumar.
- ToT Division organized a farmers training on “Post-Harvest Management of Vegetables and Fruits” for 25 farmers from Dhule, Maharashtra during 11- 15 March, 2019. The programme was



coordinated by Dr. Sandeep Mann and Dr. Renu Balakrishnan.

- ToT Division organized a farmers training on “Post-Harvest Management of Agricultural produce” for 15 farmers from Jalna, Maharashtra during 12- 14 March, 2019. Dr. Sandeep Mann and Er. Sandeep Dawange organized the training programme.



Hands on training on different aspects for farmers

Students Training:

Number of students were trained during this quarter.

Sr. No.	Name of College	No. of Students	Degree	Duration
1.	College of Agricultural Engineering and Technology, SKUAST-Kashmir, Srinagar (J&K)	09	B. Tech. (Agril. Engg.)	15-31 January, 2019
2.	College of Agricultural Engineering, Dr. RPCAU, PUSA, Samastipur (Bihar)	01	B. Tech. (Agril. Engg.)	05 February- 07 June, 2019
3.		03	B. Tech. (Agril. Engg.)	07 February- 09 June, 2019
4.	Sriram College of Agricultural Engineering, Solapur (Maharashtra)	04	B. Tech. (Agril. Engg.)	15 May - 14 June, 2019

EXHIBITION/ MELA:

Exhibition/ Mela	Date	Venue
106 th Session of the Indian Science Congress 2019	January 03-07, 2019	LPU, Phagwara, Punjab
14 th Agricultural Science Congress	February 20-23, 2019	ICAR-IARI, New Delhi
Coastal Agriculture Expo 2019	March 02-04, 2019	ICAR-CCARI, Old Goa
Technology Demonstration Mela	March 8, 2019	KVK, ICAR-CIPHET Abohar
Kisan Mela	March 15-16, 2019	PAU, Punjab



(a)



(e)

Photo(a-e): ICAR-CIPHET presence in different exhibitions and melas



(b)



(c)



(d)

PARTICIPATION IN CONFERENCE/ SEMINAR/ MEETING

- Dr. Armaan U. Muzaddadi participated in 31st All India Congress of Zoology and National Seminar on Climate Smart Aquaculture and Fisheries during 15-16 January, 2019) and presented a paper on “A smart technology of transporting fish in live condition for small holding fish farmers”.
- Dr R.K. Singh, Dr. Ramesh Kumar, Dr. Sakharam Kale, Dr Bibwe Bushan and Dr Renu Balakrishnan attended the National Workshop on “ Horti-produce transport in India- Present status and issues for reduction in post-harvest losses” held in NASC complex, New Delhi on 8 January, 2019.
- Dr. Bibwe Bhushan, Er. Yogesh B. Kalnar and Dr Bidyalakshmi attended 53rd Annual Convention of Indian Society of Agricultural Engineers (ISAE), held at Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (UP) during 28-30 January, 2019
- Dr. Pankaj Kannaujia participated and presented a poster in the 8th Indian Horticulture Congress (IHC) held from 17- 21 January, 2019 at IGKV, Raipur.
- Dr. Bhupendra M Ghodki and Dr. Sunil Kumar attended International conference on Technological innovations for integration of food and health (TiiFH 2019): A focus on North-Eastern India at Tezpur University, Tezpur, Assam during 14-16 February, 2019.
- Dr. Sunil Kumar attended an International conference on Climate change towards health and agricultural sustainability (CCHAS-

2019) at Guru Jambheshwar University of Science and Technology, Hisar, Haryana during 18-20 February, 2019.

- Dr. Kirti Jalgaonkar attended the 2nd International Conference on “Food Security, Nutrition and Sustainable Agriculture-Emerging Technology” held at Department of Agriculture, Baba Farid College, Bhatinda, Punjab during 14-16 February, 2019.
- Dr. A. U. Muzaddadi, attended “National Consultation on ICT in Agriculture” at NASC Complex, New Delhi during 06-07 March, 2019.
- Dr. K. Bembem, presented an oral presentation on "Millet based beverage for geriatric population” for the sub tract “Innovative food product development” during the multi-track National conference SLIET-CON-2019 at NITTTR, Chandigarh during 01-02 March, 2019.
- Dr. Ramesh Kumar and Dr. Bhupendra M Ghodki attended a meeting with Dr. M Ariz Ahmed, MD, National Horticulture Board (NHB), Gurugram on 18 February, 2019. The meeting was related to various training programs that can be fully funded by NHB Gurugram.
- Dr. Sunil Kumar attended a meeting chaired by DC, Fazilka at his office regarding eradication of alternate hosts of white fly of cotton on 12 March, 2019.
- Dr. Sandeep Mann attended a meeting at NIFTEM, Sonipat on 25 March, 2019.
- Dr. Sandeep Mann attended a meeting at ICAR-Head Quarters with ADG (Extension) regarding budget of Farmer FIRST Programme Project on 15 February, 2019.
- Dr. A. U. Muzaddadi attended Scientific Advisory Committee (SAC) meeting of KVK, Fazilka during 07-08 February, 2019
- Dr. Sandeep Mann attended meeting at ICAR-CSSR, Karnal for finalizing data for carrying out impact assessment of Farmer FIRST Programme project on 13-14 February, 2019.
- Dr. Bibwe Bhushan attended the Board of Management meeting of Community College (Food processing and preservation), Gopichand

Arya Mahila College, Abohar as Member academician on 25 March, 2019.

- Dr. Sunil Kumar inspected “Devansh Testing and Research Lab” at Roorkee, Uttarakhand during 19-20 March, 2019 in collaboration with MOFPI as nominee of DDG (Engg.).
- Dr. Sunil Kumar assisted in field days of CFLD on pulses villages Bhagsar and Wariyamkhera on 25th and 28th Mar, 2019, respectively.

CAPACITY BUILDING

- All Scientist of ICAR-CIPHET, Ludhiana attended a demonstration on Konica Minolta Hunter Colorimeter on 23 January, 2019.
- Dr. Renu Balakrishnan attended ICAR sponsored Winter School on “Farmer Empowerment through Entrepreneurial Ventures” at Directorate of Extension Education, Punjab Agricultural University, Ludhiana during 1-21 February, 2019.

AWARDS AND RECOGNITION

- Dr. Bhupendra M Ghodki was awarded Young Researcher partial funding from SERB, DST India and Tezpur University to attend the International Conference on Technological Innovation for Integration of Food and Health: A Focus on North-Eastern India (TiiFH-2019) held at Tezpur University, Tezpur Assam during 14-16 February, 2019.
- Dr. Kirti Jalgaonkar received Best Oral Presentation award for the paper entitled, ‘Development and performance evaluation of mechanized system for destalking of dried red chilies (*Capsicum annum* L.)” in International Conference on Food Security, Nutrition and Sustainable Agriculture- Emerging Technology held at Department of Agriculture, Baba Farid College, Bhatinda, Punjab during 14-16 February, 2019.

PUBLICATION

Research Paper

- Bhushan B, Yadav SK, Mahawar MK, Jalgaonkar K, Bibwe B, Dukare A, Meena VS, Negi N, Kumari R, Pal A (2019). Nullifying phosphatidic acid effect and controlling

phospholipase D associated browning in litchi pericarp through combinatorial application of hexanal and inositol. *Scientific Reports*. 10.1038/s41598-019-38694-5 (NAAS rating: 10.12).

- Das A and Muzaddadi AU (2019). Assessment of hygiene status of retail fish market using seasonal changes in microbial load as a tool, *Fishery Technology* 56: 60-67.
- Dukare A, Kumar S, Jangra RK, Bhushan B, Jalgaonkar K, Meena VS, Mahawar MK and Bibwe B " (2019). "Cross pathogenicity of *Botryodiplodia theobromae*, an original isolate from guava fruits on the different cultivars of mango". *International Journal of Chemical Studies* 7(2); 450-454. (NAAS Rating: 5.31).
- Jalgaonkar K, Jha SK, Mahawar MK, Yadav DN (2019). Pearl millet based pasta: optimization of extrusion process through response surface methodology. *Journal of Food Science and Technology*. 56(3): 1134-1144. (NAAS rating: 7.80).

Conference Paper/Abstract

- Kale S J, Kannuajia P, Indore N, Nath P and Singh RK (2019). Phase change materials based mobile cool chamber for transportation of perishables. In: *Souvenir of 13th International conference on Development of Drylands: Converting Dryland areas from Grey into Green* held during 11-14 February, 2019 at ICAR-CAZRI, Jodhpur, Rajasthan. pp: 269.
- Ghodki, B.M. (2019). Effect of dehydration and grinding temperatures on particle and physico-chemical characteristics of onion powder. In: *Souvenir of International Conference on Technological Innovation for Integration of Food and Health: A Focus on North-Eastern India (TiiFH-2019)*, during 14–16 February, 2019 at Tezpur University, Tezpur, Assam.
- Nath P and Kale S.J. (2019). Development of high value soft-textured aonla (*Emblica officinallis* L.): Candies through freezing process. In: *Souvenir of 13th International conference on Development of Drylands: Converting Dryland areas from Grey into Green* held during 11-14 February, 2019 at ICAR-CAZRI, Jodhpur, Rajasthan. pp: 275.
- Bibwe B, Mahawar MK (2019). Mass prediction modeling of Guava (cv. Allahabad safeda) fruit

with selected dimensional attributes. In: *Souvenir of 53rd Annual Convention of Indian Society of Agricultural Engineers (ISAE)*, held during 28-30 January, 2019 at Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (UP). pp: 55-56.

- Kumar S, Kumar R and Raheja S (2019). Antimicrobial edible coatings in fresh food applications. In: *Souvenir of International Conference on Technological Innovation for Integration of Food and Health: A Focus on North-Eastern India (TiiFH-2019)*, during 14–16 February, 2019 at Tezpur University, Tezpur, Assam. pp:38.
- Kumar S, Kumar R and Raheja S (2019). pH dependent swelling behaviour of acrylic acid: kinnow (*Citrus reticulata* L.) peel pectin hydrogels. In: *Souvenir of International Conference on Climate Change towards Health and Agricultural Sustainability (CCHAS-2019)* held during 18-20 February, 2019 at Guru Jambheshwar University of Science and Technology, Hisar, Haryana. pp: 337.
- Kumar P, Saha D and Kumar A (2019). Thin layer drying kinetics of Maize cob. In: *Souvenir of 53rd Annual Convention of Indian Society of Agricultural Engineers (ISAE)*, held during 28-30 January, 2019 at Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (UP).
- Jalgaonkar K and Mahawar M K (2019). Development and performance evaluation of mechanized system for destalking of dried red chillies (*Capsicum annum* L.). In: *Souvenir of 2nd International Conference on "Food Security, Nutrition and Sustainable Agriculture- Emerging Technology"* held during 14-16 February, 2019 at Department of Agriculture, Baba Farid College, Bathinda, Punjab.
- Meena V S, Mahawar M K and Jalgaonkar K (2019). Emerging trends in value addition of arid horticultural crops. In: *Souvenir of National Seminar on Technological Advancement in Horticulture for 21st Century* held during 18-19 February, 2019 at College of Horticulture and Forestry, Jhalapatan, Jhalawar, Rajasthan. pp: 139-145.
- Bembem K and Agrahar-Murugkar D (2019). Millet based functional beverage for geriatric population. In: *Souvenir of A Multi-tract*

National Conference (SLIETCON-2019) during 1-2 March, 2019. pp.25-26

Book Chapter

- Sethi S, Anurag RK, Kumar Y and Chauhan O.P. (2019). Combination of non-thermal processes and their hurdle effects. In Non-thermal processing of foods. Eds. Chauhan O.P. CRC Press USA. DOI: 10.1201/b22017-17.

Compendium

- Mann S, Bembem K. and Dawange S (2019). Compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp:184.
- Mridula D, Goswami D and Solanki C (2019). Extrusion technology for increasing farmer’s income. Training compendium of Model Training Course on ‘Processing, value addition and entrepreneurship development in post-harvest sector’ held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.

Technical Article

- Balakrishnan R, Murai AS, Bembem K., and Bidyalakshmi Th. (2019). Agribusiness Planning. In compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp.111-119
- Bembem K, Balakrishnan R, Bidyalakshmi Th. and Kumar V (2019). Entrepreneurship Potential of Nutraceuticals and Functional Foods. In compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp.164-168.
- Mann S, Dawange SP, Kalnar YB, Bembem K and Balakrishnan R (2019). Status of post-harvest management and processing of agricultural produce in India and its scope in rural economy. In compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp:7-14.

- Muzaddadi AU (2019) Recent advances in fish processing and live fish transportation. In compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp:134-151.
- Kumar V, Muzaddadi AU and Mann S (2019). Utilization of fish processing by-products: prospects and potentials for entrepreneurship development. In compendium of Model Training Course “Processing, Value addition and Entrepreneurship Development in Post-harvest sector” held during 14-21 January, 2019 at ICAR-CIPHET, Ludhiana.pp:33-40.

Popular Article

- प्रेरणा नाथ और स. जे. काले. (2019). टमाटर मूल्य संवर्धन. फल फूल. पृष्ठ संख्या. 27-30.

PERSONALIA

Transfer

- Sh. Rajiv Sharma, Senior Technical Assisstant transferred from ICAR-CIPHET, Abohar to Ludhiana campus on 12 March, 2019.
- Dr. Bhupendra M. Ghodki, Scientist has been transferred from ICAR-CIPHET, Abohar to ICAR-CIPHET, Ludhiana campus on 12 March, 2019

KVK ACTIVITIES

- Scientific Advisory Committee (SAC) Meeting of KVK, Fazilka under ICAR-CIPHET was organized on 8 February, 2019. Mann Ki Baat Programme: Speech of PM India (Live telecast) was organized at KVK Fazilka on 24 February, 2019
- Dr. Sunil Kumar assisted in field days of CFLD on oilseed at village Amarpura and Raipura on March 14 and 15, 2019, respectively.
- Demonstration of Post-harvest equipment and machinery was organized on 11 January, 2019 and around 12 farmers participated in the programme.
- A training programme on Bee Keeping was organized on 7-11 January, 2019 and 25 participants attended the programme.

A programme on Storage and Marketing of Agricultural Commodities was organized at KVK in collaboration with National Institute of Agricultural Marketing, Jaipur and WDRA during 24 January, 2019. Around 17 participants attended the programme.

ICAR-CIPHET in NEWS



(a)



(b)



द. लोकमत जालना

(c)



द. आदर्श गावकरी दि. 20 मार्च 2019

(d)



(e)



(g)



(f)



(h)

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शेतमाल काढणीपश्चात तंत्रज्ञानाचे शेतकऱ्यांना धडे

जालना (प्रतिनिधी) : आत्माच्या वर्तने प्रकल्प संचालक आत्मा यांच्या मार्गदर्शनाखाली 'शेतमाल काढणीपश्चात व्यवस्थापन' या विषयावर प्रशिक्षणात जालना जिल्ह्यातील शेतकऱ्यांनी सहभाग नोंदविला.

पंजाबमधील लुधियाना येथे झालेल्या या प्रशिक्षणासाठी प्रमुख मार्गदर्शक म्हणून डॉ. संदीप माण, डॉ. संदीप दवणे, डॉ. रेणू बालकृष्णन, डॉ. योगेश काळनर, डॉ. सिंग हे होते. या प्रशिक्षण कार्यक्रमात सोयाबीनपासून पनीर तयार करणे, सोय दूध, टोमटो केचप, मिरची प्युरी, मिरचीपासून तयार होणारे विविध पदार्थ तयार करून दाखविले. हळद प्रक्रिया व धान्य स्वच्छता करणे याबरोबरच कृषी प्रक्रिया करण्यासाठी विविध लागणाऱ्या मशिनरीची माहिती शेतकऱ्यांना दिली. तसेच अपेडाच्या वर्तने प्रगती मैदान नवी दिल्ली येथे

आंतरराष्ट्रीय आहार या कृषी प्रदर्शनाला भेट देऊन विविध अन्न प्रक्रिया व पॅकेजिंग या विषयी महिती शेतकऱ्यांना करून देण्यात आली. कृषी विभागाच्या वर्तने राज्याच्या कृषी विस्तार कार्यक्रमांना विस्तारविषयक सुधारणाकरिता सहाय्य-कृषी तंत्रज्ञान व्यवस्थापन यंत्रणा आत्माअंतर्गत जिल्ह्यामध्ये शेतकरी उत्पादक कंपन्या व शेतकरी गटांची मोठ्या प्रमाणात स्थापना करण्यात आली. गटाचे रसांतर शेतकरी उत्पादक कंपन्यांमध्ये झाले. त्यापैकी काही शेतकरी उत्पादक कंपन्यांना कृषी प्रक्रिया करण्यासाठी गटशेतीस चालना देण्याच्या योजनेतर्गत निवड करण्यात आली होती. प्रशिक्षणाला अविनाश भोसले, दत्तात्रय सुर्यवंशी, भरतराव गव्हाणे, रवींद्र गोल्डे, भगवान डोंगरे, श्रीकांत आखाडे, बाळासाहेब आकांत, उत्तम जाधव यांच्यासह शेतकरी कंपन्यांचे प्रतिनिधी उपस्थित होते.

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By ICAR – Central Institute of Post-Harvest Engineering and Technology (CIPHET) on 25 Jan 2019 | 1 min read



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A Model Training Course on "Processing, Value Addition and Entrepreneurship Development in Post-Harvest Sector" sponsored DoE, MoA&FW, Govt of India was conducted at ICAR – Central Institute of Post-Harvest Engineering and Technology (ICAR-CIPHET), Ludhiana from 14 to 21 January, 2019. Total 18 participants from different states of the country participated in the 8 Day long programme. The valedictory programme was presided over by chief guest Dr. Rajbeer Singh Director, ICAR- Agricultural Technology Application Research Institute (ATARI), Ludhiana. The Course Director, Dr. Sandeep Mann articulated the gathering that the aims of training was to bring together the officers from the State Development Department (Agriculture/Horticulture) of the country on a common platform to discuss and update various processing, technological and entrepreneurial aspects in post-harvest sector. The officials from different

(j) (a-j): Newspaper Clips

SECTORIAL NEWS

NAFED to sell organic foods via e-commerce sites at reasonable prices

Plans are afoot for the retail arm of NAFED (the National Agricultural Cooperative Marketing Federation of India Ltd) to sell organic food products via e-commerce sites at reasonable prices. This was stated by Sanjeev Chadha, executive director, NAFED, who added that the decision was in the final stages. "The agricultural trading agency has got the in-principle nod in this regard, and talks with the e-commerce sites have commenced," he said. The plan is being implemented under PMKVY (the Pradhan Mantri Krishi Vikas Yojana), under which farmers have been directed to form farmer producer organisations (FPOs) and provided the requisite aid and assistance.

Cabinet approves MoC between India & Japan in food processing industry

The Union Cabinet, chaired by Prime Minister Narendra Modi, has given its nod to the Memorandum of Cooperation (MoC) between India and Japan in the field of food processing. Bilateral cooperation in the field of food processing between India and Japan will be mutually beneficial to the food processing sector in both countries.

The MoC will lead to betterment of the food processing sector in the country by introducing innovative techniques and processes. It will help in increasing food processing in the country by getting access to best practices and better markets.

Govt to link states for easy food transportation under Operation Greens

Union Minister for Food Processing Industries Harsimrat Badal has said that the government is aiming at linking states in the country for ensuring easy transportation of food to places where there is high demand under the Operation Greens programme. Badal revealed this while speaking after inaugurating the 2nd Indus Food

trade fair being held at Noida in January, 2019. Badal stated that transportation of perishables was a priority, wherein chances of wastage were high. “This would ease the burden on farmers from the production surplus states who often fail to get decent remunerative prices of the produce,” she said.

Sri Lanka to launch colour code system for packaged foods indicating sugar levels

Sri Lankan health minister Rajitha Senarathne has stated that health authorities would introduce a colour code system for packaged foods, indicating the levels of sugar, fat and salt content, to prevent the spread of non-communicable diseases (NCDs) in the country. He added that the high use of sugar, salt and fat was causing many NCDs, including cancer, and since 2018, the health ministry had begun gathering data and conducting discussions with local biscuit and sweet manufacturers in a bid to introduce the colour code system from April 2019.

FSSAI releases draft regulations for processing aids to streamline processes The Food Safety and Standards Authority of India

(FSSAI) has released a draft regulation for processing aids aimed at streamlining of the processes involved in food processing manufacturing like solvents for extraction, bleaching and washing agents, enzymes, etc. called Food Safety and Standards (Food Products Standards and Food Additives) Amendment Regulations, 2019. The objective of the draft is to help the FBOs (food business operators) to be able to identify the favourable processing aids.

Gram Samridhi Yojana: A scheme to boost the unorganized food processing sector

India’s Food Processing Ministry is planning out a new scheme, Gram Samridhi Yojana to strengthen the unorganised food processing sector focused in rural areas. The Rs 3,000 crore scheme funded by the World Bank and the centre will help cottage industry, farmer producers’ organisation and individual food processors to increase capacity, upgrade technology besides skill improvement, entrepreneurship development and strengthening the farm-to-market supply chain.

About the publication:

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