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From The Director's Desk



Despite of tremendous technological advancement in soil and water conservation (SWC) in recent years, weather still remains a key component of agriculture productivity. Climate upheavals, of late, has emerged as a big challenge that are being discussed on all platforms. In this context, Institute is aware of its responsibilities and strives hard to

enlighten/sensitize the stakeholders through a wide range of activities under different heads apart from a settled research programme.

This issue of newsletter highlights the events organised by the Institute and its research centres under different projects and programmes during the month of March, 2022. A number of capacity building, skill development, farmer outreach programmes (virtual and physical mode) were organised under various projects *viz*, TSP, SCSP, Farmer First *etc.* Also, inputs were distributed to the farmers of adopted villages.

Three MoUs were signed by ICAR-IISWC with (i) DSC&WD, Agriculture & Farmers' Empowerment Department, Govt. of Odisha, Bhubaneswar for implementation of World Bank assisted programme on “Rejuvenating Watersheds for Agricultural Resilience through Innovative Development” (REWARD: Odisha), (ii) the KPR Institute of Engineering and Technology, Coimbatore for cooperation in Research and Teaching, (iii) ISRO- IIRS, Dehradun for implementing the collaborative research project on “Soil Erosion Estimation based on Radio Tracer Technique and Soil Quality Assessment in Mountainous Landscape of North-West Himalaya”.

I am immensely happy to underline a noble initiative ventured in association with International Bamboo and Rattan Organisation (INBAR) for training on Bamboo and Ringal products in rural areas. The enterprise will definitely open-up new avenues for farmers towards enhancing their skill and generating revenue.

M. Madhu

New Initiatives

MoU Signed

■ MoU with the KPR Institute of Engineering and Technology (KPRIET), Coimbatore, TN

The ICAR-IISWC, RC, Udhagamandalam signed MoU with the KPR Institute of Engineering and Technology, Coimbatore on 5th March, 2022. The scope of MoU target cooperation in Research and Teaching between two institutes.

The MoU was signed by Dr K. Kannan, Principal Scientist & Head, Regional Center, (on behalf of the Director, IISWC) and Dr M. Akila, Principal, KPRIET in the presence of Dr P. Raja, Principal Scientist, IISWC and Dr S. K. Annepu, Scientist, IISWC and Dr A. K. Priya, Professor of the KPRIET. The MoU, primarily targets cooperation between the two institutes in the field of research and teaching.

■ MoU with the DSC&WD, Govt. of Odisha

The ICAR-IISWC, Dehradun, RC Sunabeda, Odisha signed MoU with the Directorate of Soil Conservation & Watershed Development (DSC&WD), Agriculture & Farmers' Empowerment Department, Govt. of Odisha, Bhubaneswar on 7th March, 2022. The MoU is aimed at implementation of World Bank assisted programme on “Rejuvenating Watersheds for Agricultural Resilience through Innovative Development” (REWARD: Odisha).



The MoU was signed by Dr M. Madhu, Director, ICAR-IISWC, Dehradun and Sh. Hemanta

Kumar Panda, Director, DSC&WD, Agriculture & Farmers' Empowerment Department, Govt. of Odisha in the presence of Dr D.C.sahoo, Head, IISWC, RC, Sunabeda and Dr Santosh Kumar Khatua, Joint Director, DSC&WD along with other officers from IISWC, RC Sunabeda and DSC&WD.

■ MoU with ISRO-IIRS

The ICAR-IISWC, Dehradun and ISRO-IIRS, Dehradun signed MoU (for a period of 3 years) on 23rd March, 2022 for implementing the collaborative research project on “Soil Erosion Estimation based on Radio Tracer Technique and Soil Quality Assessment in Mountainous Landscape of North-West Himalaya”. After a short presentation, MoU was signed by the Directors of both the institute at IIRS, Dehradun Campus.



Important Events

■ Training cum exhibition on “Important Agroforestry Systems (Melia and Sandal AFS) for Erosion Control and to Improve Farm Productivity and Returns”

One day training cum exhibition on “Important agroforestry systems (Melia and Sandal AFS) for erosion control and to improve farm productivity and returns” was organised by ICAR-IISWC, RC, Udhagamandalam at Passaihanapura village, Gundlupet taluk, Chamarajanagar, Karnataka under SCSP on 04th March, 2022. A series of technical sessions elaborating about the SCSP programme and ways to increase economic returns through value addition and diversification in agriculture; importance of Melia and Sandal as an agroforestry system – its nursery techniques, cultivation practices, harvesting and marketing aspects in detail to the farmers along with the need for soil and water conservation in the present changing climate scenario were organised. Chief Guest Shri. Madhe Gowda, Retd. Teacher and progressive farmer, Belavadi village, Gundlupet taluk addressed the gathering on soil and water conservation need in agriculture and explained about the strategies for agriculture commodity marketing to the farmers. Shri. Shivanna, Shri. Siddaraju, Shri. Mahesh and Shri. Doddaraju, Gram Panchayat members and Shri. Javane Gowda, Shri. Papanna and Smt. Chikkasidamma, progressive



farmers were also present during the proceedings

Various soil and water conservation technologies were displayed and explained to the farmers.

■ Training on “Importance of Soil and Water Conservation”

ICAR-IISWC, Research Centre, Chandigarh organised one day training on Importance of Soil and Water Conservation in Bhaddi Watershed Punjab on 07th March, 2022. During the proceedings, discussion on the importance of soil and water conservation and agriculture related issues was held by the scientists of the RC, Chandigarh. Scientists deliberated upon importance of water harvesting, water conveyance system and change in cropping pattern and measures for soil health improvement. The farmers on their part laid emphasis on scarcity of water for irrigation and drinking in their village. They also requested the scientist to demonstrate latest technologies related to agriculture for increasing and diversifying their farm production. A total of 35 farmers attended the programme.



■ Training on “Soil and Water Conservation Technologies for Sustainable Vegetable Production”

ICAR- IISWC, RC, Udhagamandalam organised one day capacity building programme on “Soil and Water Conservation Technologies for Sustainable Vegetable Production” on 08th March, 2022. Speaking on the occasion, Er T. Radhakrishnan, Exec. Eng., Department of Agricultural Engineering, Udhagamandalam



elaborated the schemes available for farmers on soil and water conservation technologies. He also delivered lecture on maintenance of soil and water conservation structures for sustainable vegetable production. Dr K. Anitha, Asstt Director of Horticulture, and Ms. Kavinya, Horticulture Officer briefed about different schemes and subsidies available at the Department of Horticulture for the vegetable cultivation. Dr K. Kannan, Acting Head addressed the farmers on vegetable cultivation practices to be followed in hill farming for enhanced vegetable production. Dr S. Manivannan, Principal Scientist delivered the lecture on soil and water conservation technologies to reduce the soil erosion for major vegetable crops. A visit to 'Center of Excellence for temperate vegetable crops' Nanjanad horticulture farm, Dept. of Horticulture, Ooty was also organised. Totally 60 farmers from Dakkar Baba Nagar participated and benefitted from this training.



■ NABARD Sponsored Training on “Basics of Implementation of Watershed Development Programme”

The valedictory function of NABARD sponsored three day training programme was held on 9th March, 2022 at ICAR-IISWC, Dehradun. The training was organized for officials of the Project Implementing Agencies (PIAs) and Village Watershed Committees (VWCs) working under different Projects funded by NABARD. A total of 31 participants (28 male and 3 female) from diverse background and different regions of Uttarakhand attended the training.

Sh. A.P. Das, Chief General Manager, NABARD, RO, Uttarakhand graced the function as Chief Guest. In his address, he stressed on the importance of sustainability of watershed project and was keen that NABARD and ICAR-IISWC could be complementing each other in this direction.

Dr M. Madhu, Director, ICAR-IISWC, Dehradun congratulated the participants on the occasion. Dr D.V. Singh, I/c Head, HRDSS Division and Course Director also addressed the trainees. Apart from senior staff members of the institute the valedictory function was attended by other key officials from NABARD, Dr Puneet Kumar, AGM; Sh. Deepak Gaddekar, Asstt. Manager and Sh. Ahmed Faraz Hashmi, Consultant.



■ Training on “Surface water harvesting and recycling through micro irrigation for enhanced pulse and millet production”

ICAR- IISWC, RC, Udhagamandalam organized one day training programme on “Surface water harvesting and recycling through micro irrigation for enhanced pulse and millet production” at Boothanatham village on 10th March, 2022. Shri. N. Mariappan, Range Forest Officer, Masinagudi explained the general guidelines to be followed while adopting SWC measures and water harvesting structures nearby and within the tiger reserves. Er Jayaprakash, Asstt Exec. Eng. and Er Raguprakash, Agril Eng, Department of Agricultural Engineering, Udhagamandalam, explained various schemes for farmers on soil and water conservation available with Agricultural Engineering Department. Dr V. Kasthuri Thilagam scientist, Dr S.M. Vanitha, Scientist and Dr S. Manivannan, Principle Scientist also sensitized the farmers on various topics; the economic benefits of conserving natural resources like water and their sustainable use; need for water harvesting, recycling through micro irrigation for enhancing the pulse and millet production *etc.* Also, Literature on Multiple use of Harvested rain water in the Tamil was distributed to the farmers. 50 Tribal Farmers from Boothanatham village participated and benefitted from this training.

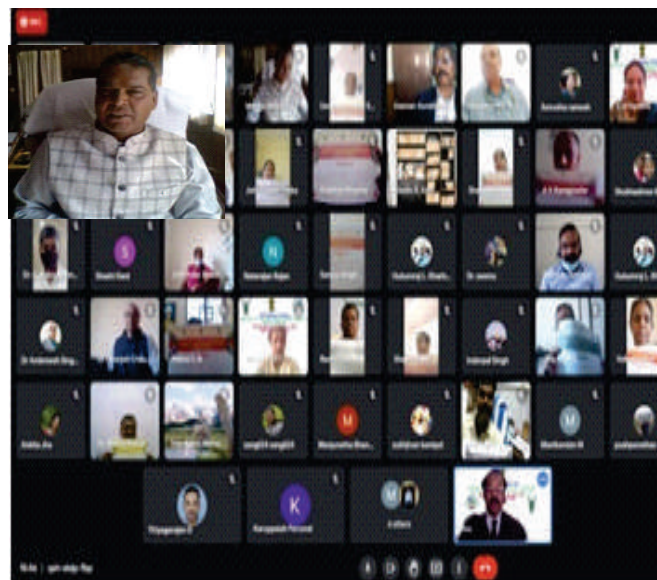


■ Training on “Advances in Integrated Watershed Management for Rural Livelihood”

DST funded two week national online training program on “Advances in Integrated

Watershed Management for Rural Livelihood” was organized at ICAR-IISWC, RC Udhagamandalam during 28th February – 11th March, 2022. Forty two Group 'A' officers from teaching and other government departments from 13 states participated. The programme concluded on 11th March, 2022. Speaking during concluding session, chief guest, Dr R.C. Srivastava, Hon'ble Vice-Chancellor, Dr Rajendra Prasad C.A.U. Pusa Bihar underlined the need for self-reliant participatory approach in IWMP with short, medium and long term impacts on rural livelihood security.

Dr M. Madhu, Director, ICAR- IISWC, Dehradun emphasised upon the need for field oriented approach with a focus on three E's *i.e.* economy, equity and environment especially for land degradation neutrality, environmental sustenance and for doubling farmers' income. Dr G. Ravindra Chary, Project Coordinator, AICRP for Dryland Agriculture, ICAR-CRIDA Hyderabad stressed the need for climate resilient interventions with agro-advisory services for IWMP. Dr Vinod K Sharma, Senior Professor, IIPA, New Delhi stressed the need to focus on disciplined scientific research to improve the livelihood of farming community. Dr K. Kannan, Head and Course Co-Director briefed the significance of improving farmer's livelihood security. All the participants were awarded certificates on successful completion of training. Scientists and many distinguished guests from across the nation participated in the programme.



■ Bamboo and Ringal product training

ICAR-IISWC, Dehradun organised a two-day bamboo and ringal product training camp for farmers in Gram Panchayat Markhoda, Khirsu in collaboration with International Bamboo and Rattan Organisation (INBAR) during 15-16th March, 2022.

In the training, 30 farmers were taught to make bamboo-ringal products. Dr J.M.S. Tomar Principal Scientist informed that the demand for bamboo-ringal products is continuously increasing in the market and farmers can improve their livelihood by cultivating bamboo. Dinesh Joshi, manager of Uttarakhand Bamboo and Fibre Development Council, enlightened the farmers about government schemes related to bamboo planting and self-employment on behalf of National Bamboo Mission to the farmers through online medium. The treasurer of the committee, Ayush Sharma informed that Sarva Kalyan Vikas Samiti (SKVS) in collaboration with IISWC, Dehradun is teaching the planting and management of bamboo and ringal plants in the states of Uttarakhand, Rajasthan, Delhi, Noida and other cities. Researcher Dr Tarun Kumar underlined the fact that bamboo can be a means of better income through bamboo cultivation, making bamboo decorations, handicrafts *etc.* On this occasion, Master Trainer Hira Singh and Manoj Kumar trained the farmers about making Ringal's products. During two day long proceedings, farmers from Bughani, Devalgarh, Jaletha, Markhoda, Tolayo, Ghodikhal, Mehal Chauri, Kothgi villages actively participated.



■ Training on “S&WC and watershed management for sustainable agriculture”

ICAR- IISWC, RC, Ballari organised a one day farmers training programme on “Soil and Water Conservation and Watershed Management for Sustainable Agriculture” at Mattajanahalli village under TSP on 17th March, 2022. A total of 30 farmers participated in the training programme and were sensitized about soil and water conservation measures. Dr B. S. Naik, Head of the Research Centre elaborated upon various site specific engineering treatment measures in watershed for soil and water conservation. Dr Jaya Prakash Narayan, Senior Scientist (Horticulture), KVK, Hagari explained the role of Horticulture in watershed development and selection of suitable tree species in terms of resource conservation and doubling the farmers' income. Issues like soil management practices for increasing crop yield; role of organic carbon and integrated nutrient management in enhancing soil health and sustainable yield and participatory rural appraisal (PRA) for effective watershed development were discussed in detail. Sh. Thimmanna, village Head highly appreciated the Centre's effort for carrying out various soil and water conservation works at Matajanahalli under the TSP scheme.



■ Demonstration on preparation of liquid manures

ICAR-IISWC,RC Ballari conducted method demonstration on preparation of liquid manures including jeevamrutha, panchagavya and imparted awareness on importance and benefits of Natural farming techniques on 24th March,2022.

The demonstration was conducted to create interest and effective use of local cow and to discourage high level use of chemical fertilizer and pesticides. During method demonstration, a step by step method and materials required for jevamrutha preparation was explained to villagers. Five farmers interested in organic and natural farming were selected and 210 litre capacity drums were distributed among them for the preparation of liquid manures. A total 20 farmers attended the demonstration.



■ Training on NRM using Soil and Water Conservation Techniques”

ICAR-IISWC, Dehradun organised three day training programme sponsored by Divisional Forest Officer, Rudraprayag on “Natural Resource Management using Soil and Water Conservation Techniques” for forest officers during 28-30th March, 2022 at Rudra Pryag. The training programme was aimed at constructing engineering structures useful

for soil and water conservation for field demonstration (under Mayali and Agastya ranges). Dr M Madhu Director, IISWC, Dehradun, in his address, while inaugurating the training camp through virtual platform emphasised upon the importance of soil and water conservation technologies in managing natural resources. Shri Vaibhav Singh, DFO, presented the details of various soil and water conservation activities under taken by the Rudraprayag Forest Department in previous years.

During three day long deliberations, Dr Charan Singh, Head, Plant Science Division, Dr J.M.S. Tomar, Er S.S. Shrimali, Dr R. Kaushal, Dr M. Muruganandam, Dr A. C. Rathor and Dr Raman Jeet Singh were engaged in detailed discussion on natural resource management through botanical measures; integrated farming system based on agro-forestry and aromatic grasses and useful engineering structures for soil and water conservation; engineering structures etc.



Human Resource Development

[A] Capacity Building: (In house employees)

- DST Sponsored training on “Advances in Integrated Watershed Management for Rural Livelihood”, from 28th February – 11th March, 2022 by ICAR-IISWC, RC, Ooty, Tamilnadu
- “International Conference on Climate Resilient Farming through multifaceted production strategies (ICCRF 2022)” organised by TNAU, Coimbatore, Tamilnadu in hybrid mode during 17-18th March, 2022.
- Workshop on “Standard Procedures for Computation of Different Resources Use Efficiencies and Environmental Indicators” on 26th March, 2022 organised by ICAR-IISWC, Dehradun

- Virtual Training Programme on *Plant Taxonomy for Plant Genetic Resource Management* during 21-26th March, 2022 at ICAR-NBPGR, New Delhi.
- National Seminar on Managing Soils in a Climate Change during 24-26th March, 2022 at Nagpur, India.
- Online brainstorming session on "Necessity for judicious use of pesticides in mushrooms and other minor crops" organized by Mushroom Society of India and ICAR-Directorate of Mushroom Research, Solan (HP) on 25th March, 2022.

[B] Capacity Development: (Programs organised for stakeholders)

- ICAR-IISWC, Research Centre, Chandigarh organised one day training on Importance of Soil and Water Conservation in Bhaddi Watershed Punjab on 07th March, 2022.
- Capacity Building Programme on "Soil and Water Conservation Technologies for Sustainable Vegetable Production" under SCSP at ICAR-IISWC, RC, Udhagamandalam on 08th March, 2022.
- Three day Training Program sponsored by NABARD, Regional Office, Uttarakhand concluded at ICAR-IISWC, Dehradun on 09th March, 2022.
- Two week online training programme on "Advances in Integrated Watershed Management for Rural Livelihood" at ICAR- IISWC, RC, Udhagamandalam concluded on 11th March, 2022.
- ICAR-IISWC, Dehradun organised three day training programme on Natural Resource Management using Soil and Water Conservation Techniques" during 28-30th March, 2022.

Farmers Outreach Activities (SCSP/TSP)

- ICAR-IISWC, RC, Koraput in collaboration with MSSRF conducted a Training-Cum-Distribution (Earthworms) programme in selected villages of Rayagada District on 02nd March, 2022.
- ICAR-IISWC, RC, Udhagamandalam conducted one day training cum exhibition at Passaihanapura village, Gundlupet taluk, Karnataka under SCSP on 04th March, 2022.
- Prerna Self Help Group of dependents of Covid-19 put up their stall in Vasantotsav-2022 at Rajbhawan, Dehradun during 08 to 09th March, 2022 under Farmer first Project.
- ICAR-IISWC, RC, Udhagamandalam organised Capacity Building Programme on "Surface water harvesting and recycling through micro irrigation for enhanced pulse and millet production" under TSP at Boothanatham Village on 10th March, 2022.
- ICAR-IISWC, Dehradun organised a two-day bamboo and ringal product training camp for farmers in Gram Panchayat Markhoda, Khirsu in collaboration with International Bamboo and Rattan Organisation (INBAR) during 15-16th March, 2022.
- ICAR- IISWC, RC, Ballari organized a one day farmers training programme on "Soil and Water Conservation and Watershed Management for Sustainable Agriculture" at Mattajanahalli village under TSP programme on 17th March, 2022.
- The ICAR-IISWC, Research Centre, Ballari organized one day farmers exposure field visits to Vasundhara Krishi Farm at B.G.Kere and Ramasagara model watershed respectively in Chitradurga district on 22nd March, 2022 under SCSP programme.

- The World Water Day was celebrated at ICAR-IISWC, Dehradun and its Research centers on 22nd March, 2022. The programme was organised on hybrid mode under AKAM.
- ICAR-IISWC, RC Ballari conducted method demonstration on preparation of liquid manures including jeevamrutha, panchagavya and imparted awareness on importance and benefits of Natural farming techniques on 24th March, 2022.

Publications

Research Papers

Annepu, S.K and Gupta, S. 2022. Insights into the specialty mushroom production in China - Key takeaways to Indian farmers. *Mushroom Research* 30(2) DOI:10.36036/MR.30.2.2021.119990 (NAAS Rating: 4.34)

Jinger, D., Kumar, R., Kakade, V., Dinesh, D., Singh, G., Pande, V.C., Bhatnagar, P.R., Rao, B.K., Vishwakarma, A.K., Kumar, D., Singhal, V. 2022 Agroforestry for controlling soil erosion and enhancing system productivity in ravine lands of Western India under climate change scenario. *Environment Assessment*, 194 (4): 267p. doi: 10.1007/s10661-022-09910-z (NAAS Rating: 8.513)

Mahajan, G.R., Desai, S., Manivannan, S., Manjunath, B.L., Verma, R.R., Das, B., Murgaokar, D., Desai, A.S., Morajkar, S. and Kulkarni, R.M. 2021. Soil and water conservation measures improve soil microbial activity and carbon sequestration: A study on high density cashew in West coast Region of India. *Journal of the Indian Society of Soil Science*. 69(4): pp 378-388. DOI: 10.5958/0974-0228.2021.00059.1 (NAAS Rating: 5.31).

Manivannan, S. and Thilagam, V.K 2022. Integrated farming is an effective multiple water use system to enhance the livelihood security of small and marginal farmers: A review. *International Journal of Plant & Soil Science*. 34(9): pp 60-72. (NAAS Rating: 5.03).

Sundarambal, P. and Bihari, B. 2021. Farm women's participation in watershed programme and their extent of adoption of soil and water conservation technologies in Sithayankottai watershed, Dindigul district of Tamil Nadu. *Indian Journal of Soil Conservation*. Vol. 49,

No. 3, pp 190-194 (NAAS Rating: 5.28).

Popular Articles

Jinger, D., Poonam, K., Kavita, K., Kumar, D. and Dinesh, D. 2022. Agroforestry-based ecosystem services for livelihood resilience. *Food and Scientific Reports* 3(03)

Books

Singh, R.K., Kumar, A., Prasad, S.N., Ali, S., Parandiyal, A.K., Somasundaram, J., Kumar, K., Meena, H.R., Kala, S. and Sethy, B.K 2022. 60 Years of Research on Soil and Water Conservation in Chambal Ravine Region. ICAR-Indian Institute of Soil and Water Conservation (IISWC), Research Centre, Kota-324002 (Rajasthan), ISBN-978-81-924624-7-9, 134p.

Book chapters

Kala, S., Parandiyal, A.K., Meena, H.R., Kumar, A., Ali, S., Mina, B.L., Rashmi, I. and Kumawat, A. 2021. Silvopasture system- a climate smart technology in rehabilitation and productive utilization of ravine in Rajasthan (India). Editors Yadav, K.K., Urmila and Singh, M., *In: Climate Smart Agriculture*. Agrotech Publishing Academy, Udaipur, 61p.

Muruganandam, M. and Sharma, K.K. 2022. Pisciculture for livelihood support in ravine ecosystem. Published in book "Ravine land management principle practices and strategies" *Ravine_book_IISWC* ISBN No. 978-81-7164-197-0-1

Roy, T., Rashmi, I. and Sarkar, A. 2022. The panorama of phosphorus fertilization in crop production. in soil management for sustainable agriculture, *Apple Academic Press*. pp 329-354.

Sharma, K.K. “Water harvesting and recycling in ravines” published in book “Ravine land Management Principle practices and strategies” Ravine_book_IISWC_ISBN:. 978-81-7164-197-0-1

Radio talk

Kannan, K., Sundarambal, P., Manivannan, S. and Thilagam, V.K. 2022. Delieved a TV talk related to “Documentary on Soil and Water Conservation activities” under TSP in

Doordharshan telecasted in DD Podhigai on 19th March, 2022 and in DD Puduchery on 20th March, 2022.

Manivannan, S. 2022. Delivered a TV talk related to “Water day special speech on Climate Change and water security”.

Meena, G.L. 2022. Delivered a radio talk related to “*Mitti Parkshan Ka Mahatva evam Upyogita*, AIR, Kota” on 25th March, 2022.

Awards and Recognitions

- Dr Sudheer Kumar Annepu, Scientist awarded Uma Datt Mangain Memorial Best Research Award at Doctorate level, Society for Advancement of Human and Nature (SADHNA), Dr YSPUH&F, Nauni, Solan, Himachal Pradesh, India
- Dr P. Sundarambal delivered lecture on SWC technologies in the National Science day programme conducted for farmers by Govt. Arts College, Ooty in collaboration with State Council for Science and Technology on 3rd March, 2022.
- Dr P. Sundarambal delivered lecture on SWC technologies in the Training programme conducted by Horticulture department, on 4th March, 2022 at Thoothoor Mattam village, The Nilgiris which was sponsored by THADCO National Science day programme conducted for farmers by Govt.Arts College, Ooty on 3rd March, 2022.
- Dr H.R.Meena delivered a talk in farmer's training on “Production technology for potential horticultural crops of *Hadauti* region” organized by IFFCO, Kota during 7-9th March, 2022.
- Dr Ashok Kumar, PS and Head attended as a guest of honour in the inauguration session of the Regional Seminar on "Production technology of citrus fruits" and delivered a lecture on "Economic viability of citrus fruits cultivation at farm level" on 14th March, 2022. The seminar was organised by the Centre of excellence for citrus, Kota.
- Dr H.R. Meena delivered a talk on “Improved production technology of Citrus crops” in two days Divisional Level Seminar held on 'Production and quality improvement in Citrus crops’ organised by Centre of Excellence for Citrus (COE) at Nanta Farm Kota during 14-15th March, 2022.
- Dr P. Raja delivered an invited talk on “Soil and Water Conservation Measures and Emerging Agricultural Conditions under Climate Change Scenario ” in the high end workshop-Karyashala titled “ Novel concepts and innovative technologies in Agricultural Water Management for climate smart agriculture” organised online on 17th March, 2022 by KSCSTE-Central Water Resources Development and Management, Calicut.
- Dr S. Kala, organized and celebrated world water day on 22nd March, 2022 with UG & PG students from Janki Devi Bajaj Govt. Girls College at ICAR-IISWC, RC, Kota, Rajasthan.
- Dr P. Raja was Invited speaker in the live session on “Sustainable Use of Water in Agriculture” organised by *Krishi Jagran* on 22nd March, 2022 on the occasion of World Water Day.
- Dr H.R. Meena delivered a talk on “Postharvest management in Citrus crops” in two days Divisional Level Seminar held on 'Production and quality improvement in Citrus crops’ organised by Centre of Excellence for Citrus (COE) at Nanta Farm Kota during 22-23rd March, 2022.

- Dr S.M. Vanitha, delivered an invited talk on “Soil and Water Conservation and its importance” in the farmer's training at Gandhi Kandi village, Udhagamandalam, TN. Organized by AED, TN state Government on 23rd March, 2022.
- Dr Sudheer Kumar Annepu, Scientist participated in an online brainstorming session on "Necessity for judicious use of pesticides in mushrooms and other minor crops" organized by Mushroom Society of India and ICAR-Directorate of Mushroom Research, Solan (HP) on 25th March, 2022.
- Dr Shakir Ali Prepared a contract research document on “Comparative study of different irrigation techniques and its impact on yield and water use efficiency at Nanta farm, Kota (Rajasthan) and submitted to the Irrigation Management and Training Institute (IMTI), Dadabari Road, Kota-324009 (Rajasthan) on 31st March, 2022.

Salient Research Findings

Conservation tillage based Arundo donax mats for resource conservation and enhancing cropping intensity on sloping crop lands

Experimental trial conducted at research farm, Selaqui on 4% land slope to evaluate the effect of different configurations of *Arundo donax* mats (5 and 10 cm heights and 1.0 and 0.5 m Vertical Interval) and comparisons were made with bench terraces for runoff and soil loss reduction in maize crop and their moisture conservation effects on post monsoon vegetable pea and wheat crops.

Results indicated that by placing 0.5 meter wide and 10 cm tall *Arundo donax* mats in zero-tilled maize crop at 0.5 meter vertical interval; runoff was reduced to 8.5% and soil loss was almost negligible (0.68 t ha⁻¹), compared to zero tilled maize crop grown without placing erosion controlling mat (35-37% runoff and 4.7-5.5 t ha⁻¹ soil loss). By this conservation technique,



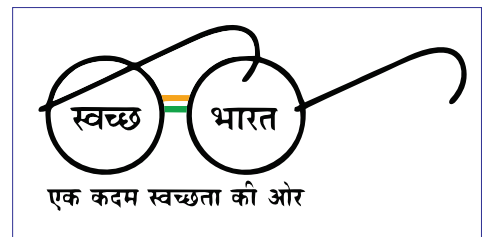
most of the rainwater was stored into soil profile which was used to raise catch crop of vegetable pea in between rainfed maize-wheat crops without significantly affecting wheat crop yield. Markedly higher wheat equivalent yields were recorded in these treatments than zero tilled maize crops grown without placing erosion controlling mat.

The use of *Arundo donax* mats (10 cm thick) in zero-tilled maize crop at 0.50 m vertical interval (VI) on sloping crop lands in Himalayan foothills recorded effective reduction in runoff (8.5%) and soil loss (0.68 t ha⁻¹) as compared to zero tilled maize crop grown without erosion controlling mats, (35-37% runoff and 4.7-5.5 t ha⁻¹ soil loss). With this conservation technique, most of the rain water got stored into soil profile which was useful for raising pea a catch crop in between rainfed maize-wheat crops without affecting wheat crop yield.



Application of *Arundo donax* mats in zero-tilled maize crop

IN NEWS



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