Compendium

ICAR Sponsored-Winter School
(November 05 -25, 2019)


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(An ISO-9001:2015 Certified Institute)

ICAR- Central Institute of Post Harvest Engineering and Technology, P.O. PAU Campus, Ludhiana-141004 (Punjab)
ICAR Sponsored Winter School


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Editors

Dr. R K Singh
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Agr@search with a human touch
Disclaimer
This compendium is a compilation of the lectures which are undertaken during organization of ICAR sponsored Winter School on “Design, Innovations and Applications of Plasticulture Technologies in Agriculture, Horticulture and Pisciculture Production and Post-Harvest Management for Doubling the Farmer's Income” at ICAR-Central Institute of Post-Harvest Engineering & Technology, Ludhiana, (Punjab) India with Dr. R K Singh (Course Director), Dr. Ranjeet Singh and Er. Navnath Indore S (Co-Course Directors). It is understood that the views expressed on various topics are the prerogative and responsibility of concerned authors.

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MESSAGE

I am happy to know that ICAR-Central Institute of Post-Harvest Engineering and Technology (ICAR-CIPHET) is organizing 21-day CAR Sponsored Winter School on Design, Innovations and Applications of Plasticulture Technologies in Agriculture, Horticulture and Pisciculture Production and Post-Harvest Management for Doubling the Farmer’s Income during 05-25, Nov. 2019.

Recent advancement in Plasticulture engineering techniques such as high tech protected cultivation, aeroponics, soil-less cultivation has opened new area of interested where youth in showing interest to produce offseason good quality produce to tap export. The burden on natural resource can only managed by this precision farming techniques developed under Plasticulture to produce more food for growing population. The emphasis on the ‘quality’ should remain the focus in all the discussion in order to meet the requirements of the sanitary and phyto-sanitary system in the context of competition in the export markets. For startup agri-enterprise, there is need to integrate knowledge (what to do), skill (how to do), ability (how to simplify) and experience (how to increase efficiency).

I congratulate the course planners, Director, ICAR-CIPHET and PC AICRP on PET for designing and submitting this proposal to the Education Division of ICAR. I also wish them good luck for success of this Winter School.

Date: 19th November 2019, New Delhi.

(K. ALAGUSUNDARAM)
Forward

India Stands in top three position when it comes to production in sector like agriculture, horticulture, Pisciculture and animal husbandry. India currently supports nearly 17.84% of the world population, with 2.4% land and 4% of water resources. The use of plastics in horticulture and post-harvest management has made considerable headway during the last decade. India produces about 5 million tonnes of plastics annually and use about 0.35 million tonnes in agriculture. Compared to world average of polymer utilization in agriculture which stands at 8%, India has ploymer utilization of just 2%.

Hence it has potential in doubling farmers income with significant employment opportunities to the rural youth. National agriculture research and extension system should converge its effort to make farmers realize the potential of plasticulture to transform farmers in to astute businessmen.

The winter school on “Design, Innovations and Applications of Plasticulture Technologies in Agriculture, Horticulture and Pisciculture Production and Post-Harvest Management for Doubling the Farmer’s Income” organized by ICAR-CIPHET is a timely action to sensitize the human resources to work on development and application of Plasticulture technologies in agriculture sector.

I am sure that the participants and other researchers will be benefited now and in future as well. I congratulate the entire organizing team of ICAR-CIPHET for their efforts. I wish that the winter school is a great success and able to fulfil its objectives.
ACKNOWLEDGMENTS

It is a privilege to extend our sincere thanks to Education Division, Indian Council of Agricultural Research, New Delhi for approving this winter school. We are thankful to K. Alagusundaram, DDG (Agric. Engg) for inspiration and support and giving us opportunity for organizing the capacity building programme. Thanks are also extended to Dr. Kanchan K. Singh, ADG (Engg) for support and motivation to conduct the programme.

We express our sincere thanks to Dr. R. K. Singh, Director ICAR-CIPHET, Ludhiana for unending support, constant encouragement and valuable guidance to conduct this school. His moral support with constant monitoring helped us at all stages of this programme.

We express our sincere thanks to the scientists of ICAR-CIPHET, Experts from different organizations (PAU & GADVASU) and i/C Head, HCP Division, ICAR-CIPHET, Abohar for providing the lecture notes in time, and other facilities for smooth conducting of this winter school.

We are indebted to all technical, administrative and supporting staff of ICAR-CIPHET, Ludhiana for their hard work in purchase of materials, and timely support in compiling the compendium.

We express our sincere thanks to Dr. Pitam Chandra (Ex Director, CIAE, Bhopal), Dr Ashwani Kumar (Ex Director, ICAR-IWMI, Bhubaneshwar), Dr. S K Nanda (Ex Head FGOP, ICAR-CIPHET), Dr. K. K Sathpaty (Ex- Director, NIRJAFT, Kolkata), Dr. TBS, Rajput (Ex PD, WTC, IARI), Dr. K Rammana Rao (i/c PFDC CIAE, Bhopal) and Dr Awani Singh (Pr. Scientist, CPCT IARI) for delivering lectures in this Winter School.

We express our gratitude to Dr. K G Singh (Sr. RE & Head SWE PAU) and i/C Vehicle Section, PAU for extending his services research filed and other facilities at CoAE, PAU Ludhiana.

Finally, we would like to thank everybody who helped us to the successful realization of this winter school, as well as express my apology for not mentioning their names personally.

RAJESH KUMAR SINGH
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