

2nd day of IARI Convocation

Significant Research Achievements of Post Graduate Students 2016-17

The second day of 55th ICAR –IARI Convocation week (Feb.6-10,2017) started with presentation of professors about significant research achievements of Post Graduate Students of the year 2016-17. Dr. (Mrs) Ravinder Kaur, Director, ICAR-IARI welcomed the chairman of the event, Dr. Rakesh Tuli, former director of the National Botanical Research Institute, Lucknow as well as the dignitaries and audience. Dr. R. K. Jain, Dean & Joint Director (Education) started the session with the welcome remarks highlighting the importance of postgraduate research programmes. Dr. Alka Singh, Pr.Scientist & Professor, Agrl. Economics was the convener of the session. The presentations were made by the Professors of the respective disciplines.

- Under School of Crop Improvement, presentations of 15 M.Sc. and 14 Ph.D students' research work were made covering the areas of Biotic stress tolerance, Abiotic stress tolerance, Improvement in quality traits and Genetics and molecular marker analysis of male sterility/ fertility systems in the crops Rice, Wheat, Mustard, Soybean, Pearl millet and Chick pea. Diversity analysis in various crops included study on morphological and biochemical parameters in faba bean crop improvement; Genetic diversity study in Cotton were the areas covered under Plant Genetic Resources.
- The presentations of Seed Technology included technology for seed quality improvement and for managing seed borne pathogen *Alternaria radicina* in carrot; besides seed quality assessment, evaluation and standardization of different vigour tests to determine physiological potential of cauliflower and radish seed lots; comparative analysis of conventional single zero and double zero quality type genotypes of Indian mustard affecting seed germination and vigour, to mitigate the effect of heat stress on wheat.
- School of Crop Protection presented the works of 18 M.Sc. and 16 Ph.D students' research. Agricultural Chemicals presentations included extraction of ellagitannins from pomegranate rind and their antioxidant activity; Impact of turmeric terpenoids on bioavailability of curcumin; Preparation of azomethine based nano-biocides and their evaluation against phyto-pathogenic fungi and nitrifying bacteria; Preparation of nano-fipronil and nanopretilachlor and their bio-efficacy evaluation; etc, while Entomology presentations covered four themes namely Insect diagnostics, Insect-microbe interactions, Pest-natural enemy interactions and Pest management. Resistance, Bio-control, Taxonomy and Basic research in nematology were covered.
- Plant Pathology presentations highlighted taxonomy of pathogens, genomics of plant pathogens, diagnostics of plant pathogens, viruses as useful genetic resources, pathogen variability, epidemiology, host-pathogen interactions and biocontrol.
- School of Natural Resource Management covered the works of 32 M.Sc. and 27 Ph.D students' research.
- Ergonomic design modifications of farm machines, Design and development of farm machinery and mechanization, Solar powered processing equipments and Soil moisture sensing system and assessment of crop coefficients for irrigation scheduling were the major areas of work in Agricultural Engineering.

- The themes on Agronomy were on Nutrient management, Conservation agriculture, Water management, integrated crop management, Crop diversification, and Dryland agronomy. Environmental Sciences themes included Climate change and agriculture, Greenhouse gas emission, Simulation modelling, and Environmental pollution.
- Endophytic microorganisms for enhanced plant growth and nutrient uptake, Bioethanol production by microorganisms, Microorganisms for efficient nutrient management and biocontrol, Molecular profiling of microorganisms were the salient themes of Microbiology.
- The themes of Soil Science and Agricultural Chemistry discipline were Integrated nutrient management under residue management, Carbon and nutrient transformations under long term fertilizer experiments, Nanotechnological interventions in enhancing the nutrient use efficiencies and Metal pollution.
- Presentations in Water Science and Technology were under two themes i.e. climate change and conservation agriculture and Poor quality and waste water management. The researches included conservation agriculture and irrigation scheduling; Water productivity of rice under different methods of establishment; Water balance and simulation studies on rice productivity; Water balance and legume productivity in rainfed agri-horti system; Modelling heavy metal adsorption and plant uptake in the vertical sub-surface flow constructed wetlands; Potential of plant based bio adsorbents for heavy metal removal from waste water.
- School of Basic Sciences shared the outcomes of 15 M.Sc. and 14 Ph.D students' research work. Novel QTLs, role of chloroplastic isoform of an amylase, interactive effects of elevated CO₂ and temperature on signaling components in plants under P starvation, optimum N fertilization as an effective tool for the bio-fortification of wheat grains with iron (Fe) and zinc (Zn), role of miRNAs in imparting resistance and susceptible properties of plants were the salient themes.
- School of Horticultural Sciences covered the outcomes of 14 M.Sc. and 16 Ph.D students' research work. Under Floriculture and Landscape Architecture, enhanced photosynthetic pigments, proline content, activity of antioxidant enzymes in marigold; efficient utilization of chrysanthemum flowers for industrial purpose i.e. carotenoids and anthocyanins as food colourant, nutraceuticals; 5-SSA acid as effective antioxidant were covered. Food science and post-harvest technology highlighted promising non-chemical approach towards extension of postharvest shelf life of okra; while Fruits and Horticultural Technologies highlighted the evaluation of grape hybrids and relative tolerance of rootstocks Vegetable science highlighted improved methods for commercial cultivation.