

## **A Report on 8 Days Model Training Course on “Hydrological and Crop Simulation Modeling in the Arena of Climate Change”**

Model Training Course On “Hydrological and Crop Simulation Modeling in the Arena of Climate Change” was held during February 6-13, 2018, at College of Agricultural Engineering and Technology, Anand Agricultural University, Godhra. The training was sponsored by Directorate of Extension Department of Agriculture Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Govt. of India, New Delhi.

Model Training Course was meant for the state extension/developmental officers of agriculture and horticulture, soil conservation and watershed management, scientists of ICAR/SAUs/KVKs in the area of Agronomy/Soil Science/Crop Protection/Agricultural Extension/Agricultural Economics/Agricultural Engineering/ Soil Water Conservation /Horticulture/Agroforestry or any other related disciplines. The training serves the following objectives:

- a) to train and aware the extension officers with watershed interventions for understanding and improving water use efficiency, climate resilient agro-technologies to enhance crop and water productivity at watershed and farm sector,
- b) to train and aware the extension officers with climate resilient agro-technologies practices which promise improved crop and water footprints in arid and semi-arid regions,
- c) to understand hydro-climatic extremes for better water and crop management using latest technologies including remote sensing, GIS and hydro-climatic modeling technologies, and
- d) to learn the benefits of climate resilient farm practices for enhancing the resource-use efficiency and climate resilience.
- e) to suggest low cost technological strategies for doubling farmers income through climate smart water management

A total of 17 participants from State departments, ATMA project, assistant and associate professors of State Agricultural Universities from different states viz. Gujarat, Karnataka, Jammu and Kashmir, took part in the training program. The expert lectures were delivered by subject matter specialists from AAU, Anand, JAU, Junagadh, ICAR, NABARD. Major emphasis was given on practical sessions by providing them hands on trainings on different crop simulation and hydrological modeling related tools and software's. Many sessions were carried out in the field for better understanding of these tools and techniques related to watershed management structures at Indian Institute of Soil and Water Conservation, Vasad, Gujarat, management of horticulture crops under rainfed conditions at Central Horticultural Experiment Station (ICAR),

Vejalpur, Gujarat and on production technologies during at Agricultural Research Station, Derol, AAU, and nearby fields, Gujarat.

The aim of this training was to provide practical guidance on how to incorporate climate change when dealing with existing challenges in water resources management, hydrological and crop simulation modeling to enhance crop and water productivity in major cropping systems. The training also addresses many topics relating to the applications and limitations of climate change models and scenarios, particularly those related to precipitation projection which is the critical factor for managing water resources; the potential impacts of climate change on water resources including water quality; exposes uncertainties and data deficiencies that affect the reliability of predictions about the consequences of climate change on water resources; the potential impacts of climate change on crop production and adaptation strategies for crop production; and case studies of climate change adaptation and mitigation strategies from water resources availability and water conservation and use perspectives. Some highlighting topics include.

- Water availability and water demand under climate change
- Hydrological modeling
- Watershed interventions for surface and groundwater management
- Crop growth simulation models
- RS and GIS interventions in hydrologic systems
- Climate change modeling & assessment
- Climate change and crop production
- Hydro-climatic extremes
- Adaption strategies for climate change

During the feedback session on the very first day participants were enthusiast about the objectives framed and were highly interested about the topic and course contents. As per the interests of the participants much emphasis was given on practical aspects, session in the field itself and hands on trainings in the laboratories besides expert lectures from knowledgeable and experts on the related topic. At the end of the training program feedback and certificate distribution session was conducted where participants also expressed their views about their learnings and views of the training program. All the participants appreciated the lectures and presentations given by the expert lectures including very relevant field sessions and laboratory based hands in trainings and computer software's leanings. All the participants were satisfied and expressed their satisfaction. One questionnaire having 35 multiple choice questions related to the basics of topic of the training program was prepared and a test was conducted before and after the training program. All the participants performed better by securing higher marks compared to what was obtained during the first session of the training program.

