

# **Professor Jayashankar Telangana State Agricultural University**

## **Agro Climate Research Centre, ARI, Rajendranagar, Hyderabad-30.**

### **Significant Achievements**

The Agro Climate Research Centre was established in 1976 at University head quarter. The unit is established with mandate of compiling historical meteorological data from various research stations of the university for critical analysis to draw useful inferences and to serve as a nodal centre for interdisciplinary research on weather impacts on crop growth, consequences of climate change of its ecological, social and economic implications.

Since then data on different weather parameter like rainfall, temperature, sunshine hours, relative humidity, wind speed, wind direction etc., are being collected from various research stations and compiled data are being subjected to critical analysis. Particularly rainfall analysis and inferences are shown for better crop planning and crop management

### **Dissemination of Seasonal Climate Forecast**

Seasonal climate (Jun-Sep) and market price forecast and crop area and production estimates are being prepared and disseminated to the farming community. The bulletin is released by the Hon'ble Chief Minister of the State on the Telugu new year day *i.e.*, on Ugadi festival day. The information provide through the bulletin will be useful to the farming community in selection of better crops and cropping systems based on weather and price forecast.



### **Weather based Agro-Advisory Services**

Since, 1994 weather based agro-advisories are being prepared based on medium range forecast issued by IMD twice in a week for the benefit of farming community. Agro-advisory bulletin contain the information on observed weather, weather forecast for coming five days, forewarning and remedial measures for pests and diseases and weather sensitive field operations. These advisories are useful to the farmers in adopting tactical decisions and strategies to be adopted to minimize the impact of adverse weather conditions on crops and livestock.

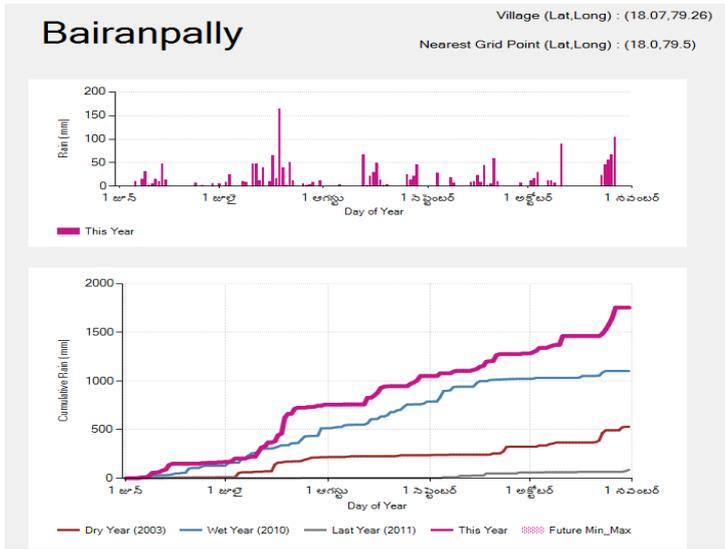


### **Drought Monitoring and contingency crop planning**

The rainfall distribution in Telangana on real time basis is monitored regularly mainly during South-West monsoon (June-September). The progress and breaks in monsoon are monitored closely and time to time contingency measures for farmers of the state is being suggested. District level contingency plan are being provided frequently during the season to mitigate the impact of deficient rains through the choice of appropriate crop and varieties, cropping system and other necessary management practices in different crops. Delineation of drought affected mandals is being done based on Moisture Adequacy Index. This information is being used by the state government for taking appropriate measures.

## Climate change studies

Temperature projections for Mahabubnagar district for RCP 8.5 mid-century through twenty GCMs indicated that the temperatures and precipitation are likely to increase during SWM ranged from 1.0 to 2.5<sup>0</sup>C and from 5.0 to 8.0 mm, respectively. The rainfed maize yields in Mahabubnagar district may possibly increase due to climate change during midcentury period as simulated by both APSIM and DSSAT models. All the GCMs tested showed increase in maize yields from 5%-15% while the increase was 12-40% with APSIM model simulations indicating there is an overall increase in maize yields. Further, the simulation results indicated that the positive effects of climate change coupled with adoption of one critical irrigation at tasseling stage found to be further improved the maize yields in Mahabubnagar district.



## Rainfall visualizer:

A spread sheet tool was developed to compare the present rainfall with 'near' wet, dry and normal years. Farmers can understand the progress of season accordingly the management decisions can be taken up by the farmers. Management options includes harvesting, plan for alternate crop adjust their irrigation and fertilizer application etc. The rainfall visualizer tool is also helpful in understanding the ground water levels.

## Climate information centres (CLICs)

Climate information centres (CLICs) were established in ACIAR project case study villages. It is a computer based off-line (with links to on-line) information system that generates the rainfall visualizer, maintains a database of the past, with information related to agriculture, livestock, fisheries, machinery etc. all packaged for easy access. The CLIC information system started with the outputs from ACIAR project but is envisaged as a growing repository of information – with visuals, videos, narrations and animations on varied subjects related to agriculture that are easily accessible to farmers. Farmers mainly get the solutions for the problems like understanding the weather forecast and weather based agro advisories to mitigate the negative effects of weather variability on crop yields.

