

Climate Change - Technological options for Rice Crop in Bapatla Coastal Agro-eco System

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ABSTRACT

Climate change is widely accepted as the single most pressing issue facing society not only in India, but also in Andhra Pradesh. Therefore, there is a need to find out new models of agricultural development to combat the negative impacts of climate change. In addition, proactive steps have to be taken to ensure the economic development of agriculture in the state of A.P. in general and Bapatla region of Guntur District in particular as more than 60% of the population in the district are farmers. With this backdrop, the weather data on rainfall and temperature from 1979 to 2014 were analysed to know the trends in climate change in the Bapatla coastal agro-eco system. The initial trends of changes in climate in the Bapatla agro-ecological region are occurring as per the global ecosystem trends. As a result the yields of rice crop are also changing. Analysis for climate change using the techniques viz., Murthy's weather health indices and DSSAT - CROPGROW software revealed that there are strong negative effects of elevated temperatures on reproductive processes and yield rice crop growth in the region. Also, there were no beneficial effects of elevated CO₂ on reproductive processes of rice crop. Added to this these effects were negative at higher temperatures for this crop. For further definite results the data has to be subjected to few more important simulations using much refined data and statistical methods, including a new "pluviothermal concept", which is expected to solve climate change and agriculture issues in coastal ecosystems of A.P.

Key words: Climate change, Technological, Weather health indices.