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Climate Variability and Its Impacts on Rice (Oryza sativa) Productivity in Dass Local Government Area of Bauchi State, Nigeria

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Abstract : Variability in climate has affected the agricultural production all over the globe. This concern has motivated important changes in the field of research during the last decade. Climate variability is believed to have declining effects towards rice production in Nigeria. This study examined climate variability and its impact on rice productivity in Dass Local Government Area, Bauchi State, by employing Linear Trend Model (LTM), analysis of variance (ANOVA) and regression analysis. Annual seasonal data of the climatic variables for temperature (min. and max), rainfall, and solar radiation from 1990 to 2015 were used. Results confirmed that 74.4% of the total variation in rice yield in the study area was explained by the changes in the independent variables. That is to say, temperature (minimum and maximum), rainfall, and solar radiation explained rice yield with 74.4% in the study area. Rising mean maximum temperature would lead to reduction in rice production while moderate increase in mean minimum temperature would be advantageous towards rice production, and the persistent rise in the mean maximum temperature, in the long run, will have more negatively affect rice production in the future. It is, therefore, important to promote agro-meteorological advisory services, which will be useful in farm planning and yield sustainability. Closer collaboration among the meteorologist and agricultural scientist is needed to increase the awareness about the existing database, crop weather models among others, with a view to reaping the full benefits of research on specific problems and sustainable yield management and also there should be a special initiative by the ADPs (State Agricultural Development Programme) towards promoting best agricultural practices that are resilient to climate variability in rice production and yield sustainability.

Keywords : climate variability, impact, productivity, rice
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