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AN ASSESSMENT OF CLIMATE CHANGE IMPACTS ON MAIZE (*ZEA MAYS*)

YIELD IN SOUTH-WESTERN NIGERIA

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ABSRACT

Maize is the most important cereal crop in sub-Saharan Africa (SSA) and an important staple food in Nigeria. Africa produces 6.5% of maize worldwide. Nigeria with nearly 8 million tons of maize,emerged the largest producer in Africa. However, most maize production in Africa is rain-fed. Given the current trends in climate change and its uncertain specific effects on the crop yields in general and that of maize in particular, formulating practical,affordable andacceptable response strategies formaize production in Nigeria required a study that evaluates the impacts of climate change on maize under varying climatic conditions.

Data on maize yield in South-western Nigeria, for eleven years(1999-2009) were obtainedfrom the Agricultural Production Surveyof the Federal Ministry of Agriculture and Rural development, Nigeria. A corresponding climatic data (minimum and maximum temperature, solar radiation and rainfall) for the period were obtained from the Nigeria Meteorological Agency (NIMET), Oshodi, Nigeria. The data sets were smoothened and adjusted for appropriate statistical analysis to generate model that could be adopted for seasonal planning and future yield optimization of *Zea mays* in the region. A linear regression model expressed as $Yield = 55.503SRAD + 2.054Tmax + 29.501Tmin - 0.052RAIN - 1459.373$ was generated where SRAD = Solar Radiation, Tmax = Maximum Temperature, Tmin = Minimum Temperature and RAIN = rainfall. The performance of the model was evaluated using the normalized root mean square error otherwise called percentage error(PE) as being capable of serving as yardstick for future assessment of climate change impact on maize yield in South-western Nigeria.

KEYWORDS: *Zea Mays*, Climate Change, Yield Optimization, South-Western Nigeria