EFFECTS OF PRECIPITATION EFFECTIVENESS ON THE YIELD OF IRISH POTATO (SOLANUM TUBEROSUM) IN JOS-PLATEAU, NIGERIA

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ABSTRACT

This study investigates the effect of precipitation effectiveness on the yield of Irish potato in Jos-Plateau, Nigeria. Rainfall data for 20 years (1989–2008) was collected from National Root Crop Research Institute (NRCRI), Vom, Plateau state. Precipitation effectiveness indices including dry spell or drought, onset dates of rains, and hydrologic ratio were derived from and used together with total annual rainfall data to assess their effects on yields of Irish potato. The indices were subjected to various descriptive and inferential statistical techniques, including correlation and regression analysis. While the correlation analysis was employed to determine the degree of relationship between yields and the indices, the regression technique was adopted to identify the factors that are critical in influencing yields. Results reveal that while rainfall total correlates positively with yields, dry spell, onset dates of rains and hydrologic ratio exhibit negative correlation with yields. The correlation between onset dates of rains and yields was found to be statistically significant at 5% while others are insignificant. Step-wise regression analysis identifies onset dates of rains as the most critical factor affecting Irish potato in the area. The coefficient of determination of $r^2=0.219$ shows that the index contributes about 22% to variations in the yields of Irish potato on the Plateau. It was recommended that further studies should consider combine effects of climate and other factors like farming practices, soil factors and cultural practices of the farmers so as to generate comprehensive information for better agricultural planning and development in the area.

KEYWORDS: Irish Potato, Precipitation Effectiveness, Regression Analysis, Jos-Plateau