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The Impact of Drought Tolerant Maize Varieties Adoption on Household Productivity, Food and Nutritional Security in Benin

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Abstract

In the context of climate change, some climate-smart innovation like drought tolerant maize (DTM) varieties packages were disseminated on all the heard of Benin's territory, to increase productivity, yield, income, food security, nutritional status, and poverty. This paper examines the impact of DTM varieties adoption on productivity, household food security and nutritional status, using country-wide cross-sectional data of about 518 maize farming households in Benin. We used respectively per capita expenditure, food per capita expenditure, households dietary diversity score (HDDS), household food consumption score (SCA), household food insecurity access scale (HFIAS) as outcome indicators of food security and nutritional status and grain yield of maize as productivity outcome indicator. To identify causal effects of DTM varieties adoption on productivity, food security and nutritional status, three instrumentals variables were used. Significant differences in socio-economic and demographic characteristics between adopters and non-adopters of DTM varieties were found. To control such differences and to allow a causal interpretation of the real effect of DTM varieties adoption, we have estimated the average treatment effect (ATE). At the end, our analyses have indicated that adoption of DTM varieties adoption significantly increased household food security by 12 percentage points. This helps severely food insecure households to achieve acceptable food security status by enabling them to acquire cereals and tubers, pulses, vegetables, and fruits on a daily basis. There was no significant impact of DTM varieties adoption on productivity. Our findings point out that DTM varieties can play an essential role in fighting against food insecurity in Benin.

Keywords: Adoption, Benin, drought tolerant maize, food security, nutritional status

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