**The impact of Drought tolerant maize (DTM) varieties adoption on household food security and Nutritional status in Benin.**

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**Abstract:**

In Benin, to face climate change, some climate-smart innovation like Drought Tolerant Maize varieties packages had been disseminated on all the heard of Benin's territory, to increase productivity, yield, income, food security, nutritional status, and poverty. This paper examine the impact of Drought tolerant maize (DTM) varieties adoption on household food security and nutritional status, using country-wide cross-sectional data of about 518 maize farming households in Benin. The study use a rigorous mixed methods approach based on both qualitative and quantitative techniques. The qualitative component consist of focus group discussions (FGDs) and In-Depth Interviews (IDIs) with various key stakeholders. The quantitative component consist of building a valid counterfactual by using a quasi-experimental design (Endogenous Switching Regression - ESR) to measure the impact of adoption of DTM varieties packages.

We used household’s Scale of experiences of food insecurity and anthropometric scores as outcome indicators of food security and nutritional status, respectively. The instrumental variable approach was used to identify causal effects of Drought tolerant maize (DTM) varieties adoption on food security and health. We found significant differences in some key socio-economic and demographic characteristics between adopters and non-adopters of Drought tolerant maize (DTM) varieties. To control for such differences and allow a causal interpretation of the impact of Drought tolerant maize (DTM) varieties adoption, we estimated the Average Treatment Effect (ATE). Our analyses indicated that adoption of Drought tolerant maize (DTM) varieties adoption significantly increased household food security by 15 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. However, there was no significant impact of Drought tolerant maize (DTM) varieties adoption on nutritional status. Our findings indicate that Drought tolerant maize (DTM) varieties can play an important role in fighting against food insecurity in Benin. Furthermore, this paper generate evidence on the effects of the DTM varieties packages through the rigorous impact evaluation approach and the results will be useful to inform other welfare-related initiatives beyond Benin.

**Keywords:** **Impact- Drought tolerant maize (DTM) - adoption - food security and Nutritional status- Benin.**