Assessment of the impact of climate change on seed cotton production: Case of the Savannah Region, North Togo

ABSTRACT

Cotton farmers, in addition to the problems and constraints they are facing already, have to deal with the new phenomenon of climate change. Currently, adaptation appears as one of the best alternatives to the impact of this phenomenon. In this framework, the present study aims at assessing the impact of climate change on cotton production in the Savannah Region. A field work was conducted before 172 cotton farmers sampled randomly in many stages in order to determine the impact of climate change on the production of the seeds of cotton. The assessment of the impact of climate change on the cotton seeds production was carried out using the ATE (Average Treatment Effect) and ATET (Average Treatment Effect on the Treated) models. The results show that climate change has a significant negative impact at 1% level on cotton production observed with an average decrease per farmer of 2330 kg, on the performance with an average fall of 515 kg / ha and on the level of income with an average decrease of 436,143 CFA francs per farmer. Climate change would reduce the level of soil fertility, favor pest resistance and lead to an increase in consumption of cotton production inputs per unit of area. The study also reveals a low level of adaptation of cotton farmers to climate change. The expansion of cultivated areas remains the main reaction of cotton farmers to climate negative effects. The sensitization of farmers on the knowledge of climate change and the adoption of techniques and adaptation strategies would improve their adaptive capacity significantly and affect positively cotton production in Togo in general and in the Savannah Region in particular.

Key words: Climate change, impact, production, cotton, ATE, ATET, Savannah.



BIOGRAPHY

SOVIADAN Mawussi Kossivi holds a master's degree in economics and a master's degree in Agroeconomics (specialty: management of natural resources and environment) at the University of Lomé, Togo. The impact assessment method based on the average treatment effect (ATE) introduced by Rubin in 1974 was used as part of our search for a master's degree in research to assess the impact of climate change on farms Cotton producers in the savannah region of Togo. As a professional experience, I worked for seven years as technical and economic advisor and management consultant to the National Federation of Cotton Producers' Organizations of Togo.

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