

## 60. New crops for a new climate: understanding farmers' behavior towards sesame and cowpea crops in Sahel

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This paper investigates the role of on-farm water management technologies, as well as the socio-economic and plot characteristics on farmers' decision-making regarding adoption of new crops – sesame and cowpea – facing the new climate conditions in the Sahel. Using cross-sectional data from the driest region of Burkina Faso, we used several econometric methods to ensure the consistence and assess the robustness of the estimates. We used both bivariate probit and recursive biprobit models to check the jointness and the simultaneity of sesame and cowpea adoption decisions. Potential endogeneity arising from on-farm water management technologies is addressed using simultaneous equations approach. The estimates provide several insights. First, there is no evidence for jointness and simultaneous causality in the adoption decisions of sesame and cowpea. Second, there is evidence of endogeneity of both two on-farm water management technologies included in the models including mulching and zai. Third, adoption of on-farm water management technologies plays important roles in farmer decision-making regarding adoption of new crops in the context of a changing climate in Sahel. Also, agro-pastoralists are more likely to adopt cowpea than crop farmers. Fourth, attending a capacity building training on climate change and adaptation and/or soil and water management has a significant positive sign on farmers' likelihoods to adopt a new crop. Fifth, farmers whose production objective is more market-oriented are more likely to adopt sesame crop, while those who mainly produce for the household consumption are more oriented toward cowpea crop. Sixth, credit and fertilizer access has a significant positive effect on new crop adoption. Land ownership is positively and significantly associated with the farmers' likelihoods to adopt new crops as coping strategies to new climate conditions. These various results provide several policy implications to enhance farmers' resilience to climate change and promote a smart agriculture with regards to the new climate conditions in Sahelian areas.