

## **Analysing the Degree of Climate Risk Perception and Response Strategies of Farm Household Typologies in Northern Ghana**

**Authors :** David Ahiamadia, Ramilan Thiagarajah, Peter Tozer

**Abstract :** In Sub Saharan Africa, farm typologies have been used as a practical way to address heterogeneity among farming systems which is mostly done by grouping farms into subsets with similar characteristics. Due to the complexity in farming systems among farm households, it is not possible to formulate policy recommendations for individual farmers. As a result, this study employs a multivariate statistical approach using Principal Component Analysis (PCA) coupled with cluster analysis to reduce heterogeneity in a 615-household data set from the Africa Rising Baseline Evaluation Survey for 25 farming communities in Northern Ghana. Variables selected for the study were mostly socio-economic, production potential, production intensity, production orientation, crop diversity, food security, resource endowments, and climate risk variables. To avoid making some individuals in the subpopulation worse off when a climate risk intervention is broadly implemented, the findings of the study also account for diversity in climate risk perception among the different farm types identified and their response strategies towards climate risk. The climate risk variables used in this study involve the most severe climate shock types perceived by the household, household response to climate shock type, and reason for crop failure (i.e., maize, rice, and groundnut). Eventually, four farm types, each with an adequate level of homogeneity in climate risk perception and response strategies, were identified. Farm type 1 and 3 were wealthy with a lower degree of climate risk perception compared to farm type 2 and 4. Also, relatively wealthy farmers used asset liquidation as a climate risk management strategy, whereas poor farmers resorted to engaging in spiritual activities such as prayers, sacrifices, and divine consultations.

**Keywords :** smallholder, households, climate risk, variables, typologies

**Conference Title :** ICASA 2022 : International Conference on Agricultural Sciences and Agribusiness

**Conference Location :** New York, United States

**Conference Dates :** December 09-10, 2022