

## 18. Farmers' perceptions of rainfall and agronomic trends in Allada plateau in southern Benin

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Although several studies show an increase in agricultural production in West Africa in connection with the improvement in rainfall, farmers perceive otherwise. This study highlights the differences between farmers' perceptions of changes in precipitation and their impacts on agricultural production and scientific observations in the Guinea region where two rainy seasons coexist. For this purpose, it compared precipitation data (from 1951 to 2010) and potential yields of corn (from 1970 to 2010), simulated by SARRA-H model, to farmers' perceptions of changes in precipitation collected from 201 farm managers spread over 67 villages in Southern Benin. The study clearly shows that farmers do not make any distinctions between the long rainy season and short rainy season in terms of changes in rainfall and agronomic impacts. On the contrary, climate analysis results, and agronomic simulations reveal that the long rainy season and short one are not affected in the same way by atmospheric forcing. Consequently, these two rainy seasons have opposite agronomic trends. Since 1970, the long rainy season has a rainfall deficit coupled with a poor temporal distribution of rainfall and a shortening in its duration which led to a sharp drop in potential crop yields. Conversely, since the late 1980s, the short rainy season rainfall recorded a surge which causes a sharp increase in agricultural yields. This pessimistic perceptions of farmers on the evolution of rainfall in both rainy seasons influences their choice of management of the farming calendar of the short rainy season, worsening food insecurity in the study area.