

intensification, irrespective of the warming scenario. Though yield variability increased with intensification, there was no interaction with warming scenario. Risk and market analysis are needed to extend these results to understand implications for food security.

Title: Climate change impacts on current and future agricultural systems in the semi-arid regions of West Africa

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Abstract: Agriculture in the semi-arid regions of West Africa is mainly rain-fed with a large number of smallholder farmers dependent on it for their livelihoods. Farming systems are dominated by cereals and legumes with livestock playing a significant role in the functioning of the systems. In this paper, we use the AgMIP Regional Integrated Assessment methods, which include a set of mid-century climate projections, biophysical (Decision Support Systems for Agro-technological Transfer; DSSAT and Agricultural Production Systems sIMulator; APSIM) and economic (trade-off analysis model: TOA-MD) models, representative agricultural pathways and global economic model projections to explore the impacts of climate change on the economic vulnerability of farm households in Nioro, Senegal. Our results indicate that most climate scenarios - except the hot-dry had positive impacts on peanuts which is one of the main crops in this production system. The effect of climate change on maize was negative and the impacts on millet were variable but changes are small. In tomorrow's production systems and socio-economic conditions, climate change would have positive impact on Nioro farmers livelihoods in almost all cases simulated. However, with low prices, climate change would have a negative impact of Nioro farmers' livelihoods in most cases. For Senegal, these results have significant policy implications, in particular on international trade and regional prices as peanut is one of the major export commodities.

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[Session 2E: Modeling the Causes and Cascading Impacts of Food Shocks](#)

Title: New crop modelling technique for improving model performance under climate change and stress simulations

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