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Fostering knowledge sharing about agroforestry systems through gaming and simulation in Irituia (Northeast Para, Brasil)

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In the Eastern Amazon, many small-scale farmers have been spontaneously initiating experiences in forest restoration, mainly through agroforestry systems. To guide more inclusive restoration policies, it is important to assess the socio-economic viability and ecological benefits of the different systems. Following a companion modelling approach, simulation and gaming tools were developed to enable exploring how and why smallholders would engage in farming systems oriented toward agroforestry systems. A stylized model of 4 similar 25-ha family farms was first designed by researchers. This virtual landscape represents a game board. During gaming sessions, participants are requested to select the activities they would like to perform, to locate them in the game board and to indicate the practices related to these activities. These human-made decisions are inputted into a computer simulation model that allows simulating the growth of the plants and calculating a set of indicators to assess the balance between environmental and socioeconomic benefits. This tool has been co-designed with a small group of farmers from the Municipe of Irituia (North-eastern Para, Brazil) who were selected because of the experience in agroforestry systems. The game was then tested by students from Itabocal, a rural school of Irituia Municipe. We present how it enabled fostering knowledge sharing among students, farmers and researchers.

A gaming session in Irituia

Keywords: Gaming, Agent-based simulation, social learning, Brasil.