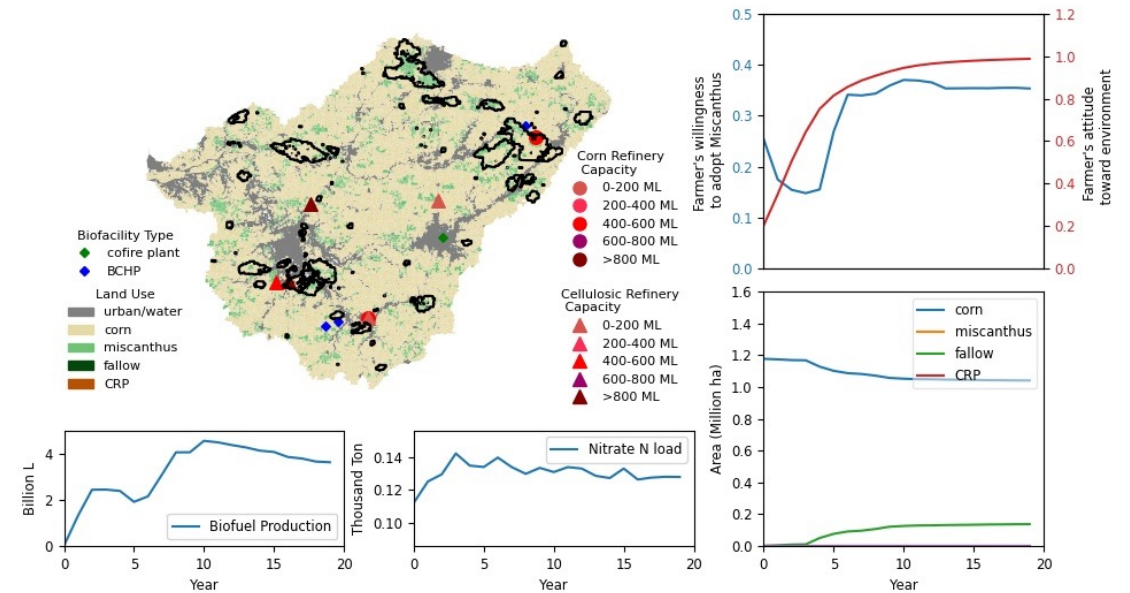


Background/Objective

- For a cellulosic bioeconomy to emerge, a stakeholder synergy approach is needed, in which key stakeholders benefit from each other's decisions.
- To demonstrate the role of stakeholder synergy, researchers developed and tested an agent-based model (ABM) as a communication tool based on a shared vision among stakeholders.

Approach

- The model was developed and validated based on behavior, economic theory, information attained from a stakeholder focus group study (FGS), and a land use survey.
- Bioeconomy development paths suggested by the FGS were explored.



Simulation interface for the agent-based model community communication tool.

Results

- The case study demonstrates the model's capacity to represent complex stakeholder interactions and heterogeneities.
- Cellulosic bioeconomy development is fastest under a portfolio of policies combining the views of multiple stakeholders.
- Subsidies for small-scale biofacilities effectively promote the local market.

Significance/Impacts

The ABM tool may be used by researchers and stakeholders to simulate outcomes of different policy and environmental scenarios, thus enabling development of stronger community synergies needed for bioenergy development.

Yang, P., Cai, X., Hu, X., et al. 2022. "An Agent-Based Modeling Tool Supporting Bioenergy and Bio-Product Community Communication Regarding Cellulosic Bioeconomy Development." *Renewable and Sustainable Energy Reviews*. DOI: 10.1016/j.rser.2022.112745