**Reimagining the United States’ agricultural system for environmental sustainability**

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Building on the single- and multi-lever efforts of the INFEWS project, we propose to develop a comprehensive set of model experiments to reimagine US agriculture over the next 30-50 years with sustainability and other environmental outcomes at the forefront.  This represents a full integration of our four models and will serve as the capstone analysis of the project.

In this set of experiments, we will use the fully coupled suite of project models (Agro-IBIS, ENVISAGE, SIMPLE-G, and WBM) to simultaneously apply the full suite of policy interventions that we can represent, subject to politically feasible but loose constraints.  Multiple outcomes would be assessed through a diverse set of metrics designed to evaluate policy effects on the sustainability of groundwater, water quality, Gulf of Mexico hypoxia, energy, food, and land.  The objective is to use metaheuristics to select policies that make as much progress on these outcomes as possible within the scope of political, economic and physical reality.  We are looking for solutions that are transformational, but also pragmatic and possible, within the next 50 years.