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Development of a management-focused, spatial decision support tool to simulate water resource effects of climate forecasting within southern Florida beef cattle agroecosystems.

Management of beef cattle enterprises often occurs within the context of complex environmental and societal challenges including elements of economic and management viewpoints as well as the often-explored technical perspectives. Adding to this existing challenge is the uncertainty of climate, market and environmental drivers to agroecosystems. Decision Support Systems (DSS) linking climate forecasting, water resources and agriculture should be cognizant of the intersecting and sometimes conflicting goals of profitability, non-point source pollution effects and adaptive management. These decision tools should communicate simulation results with decision-makers or stake-holders in their own language and metrics whenever possible while still representing the uncertainties inherent in climate forecasts. This research project explores the role of management-focused, agro-ecosystem models coupled with climate forecast information. Specific objectives/outcomes of this research include (1) the design and construction of a decision support/scenario-based model (QnD:BIR) for the MacArthur Agro-Ecology Research Center located on the Buck Island Ranch, Lake Placid Florida; (2) inclusion of climate forecasts on management decisions with respect to water resource factors such as runoff and nutrient loading.

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