

Ecological Design and Evaluation for Integrated Food-Energy Systems

Sam Gorton^{1,2}, John Todd^{1,2} and Mary Watzin²

Abstract: Agricultural practices are a key leverage point in addressing global issues of ecological degradation caused by modern industrial practices. While in the not-so-distant past, farms were substantially material and energy self-sufficient, today's industrialized food system is heavily dependent upon external inputs with significant impacts beyond the farm. In response to the specialized nature of industrialized agriculture, the ecological design concept of combined food-energy (CFE) agroecosystems seeks to re-integrate food, feed, fiber and energy production activities in the working landscape. This re-integration can be accomplished with the application of modern ecological technologies. The purpose of my research is to review, integrate and test novel simulation modeling tools for small-scale CFE agroecosystem planning and monitoring with particular focus on economic and ecological trade-offs.

¹ Gund Institute for Ecological Economics

² Rubenstein School of Environment and Natural Resources