

Biofuel Feedstock Production Economics

National Soil Dynamics Laboratory

USDA-ARS

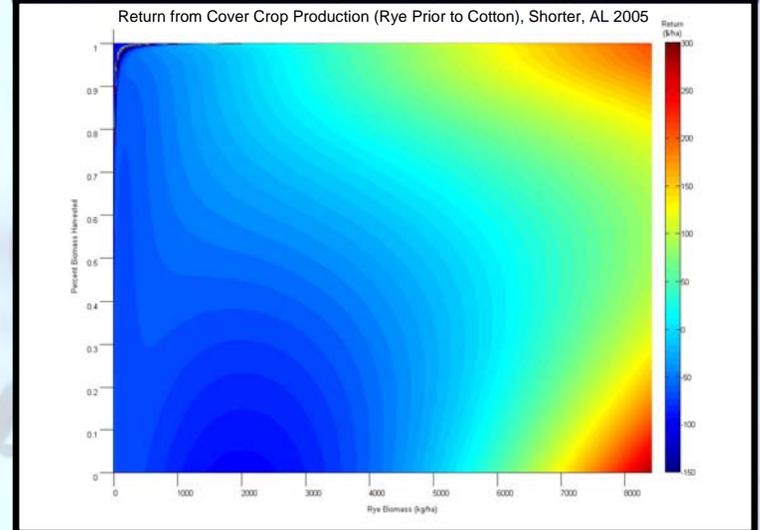
Auburn, AL

Cover Crop Survey Project

Purpose: To assess farmers' willingness to adopt high-residue cover crops for soil conservation and/or to produce alternative bio-energy feedstocks in the southeastern United States.

Scale: Farm Level

Data Collection: Survey administered in Alabama to 1300 row crop farmers over 200 acres in size. Plan to survey at least GA, but possibly FL, MS, NC, SC, TN.



ESAFE

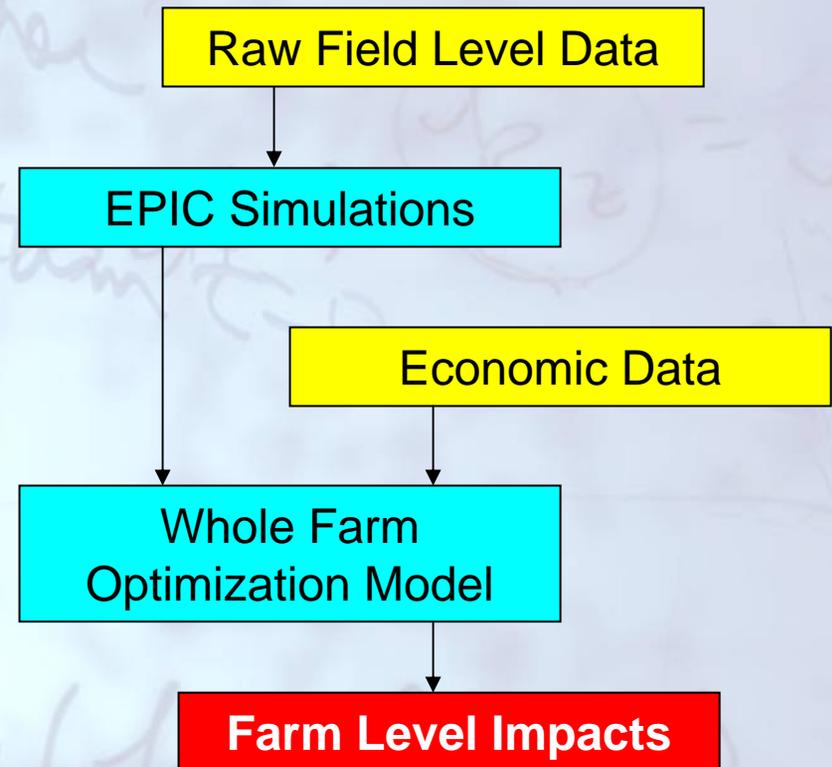
- **Objective 1. Determine the sustainability of utilizing crop and livestock residues as feedstock for bio-energy production alternatives.**
 - Sub-objective 1-1. Define representative case farms across a series nation-wide locations that have potential feedstock for bio-energy production to establish a baseline for analysis and comparison
 - Sub-objective 1-2. Quantify the volume and source of different feedstock that could be used for bio-energy production and the associated costs/benefits (economic and environmental) of harvesting and delivering the feedstock for processing.
 - Sub-objective 1-3. Develop mathematically optimized whole-farm plans for the representative case farms, with and without bio-energy included, to compare the changes in net farm income, crop and livestock production, natural resources, and reliance on outside energy sources.
 - Sub-objective 1-4. Determine the economies of size and scale required for investment of an infrastructure to produce bio-energy from feedstock at the farm and/or regional level.
 - Sub-objective 1-5. Evaluate the farm and regional economic and environmental impacts of utilizing crop and livestock residues for bio-energy production.

Whole Farm Optimization Model

Objective: Programming a nonlinear whole farm optimization model in EXCEL connected to Farm Suite.

Scale: Representative farms in different geographical regions of the country.

Data Requirements: Field level crop, soils and practice data. Enterprise budgets and biofuel production costs/returns. EPIC simulation data and environmental measures.



Whole Farm Optimization Model



Location 1: Minnesota

Crops: Corn, Soybean

Biofuels Feedstocks: Corn Stover, Corn Grain, Soybeans

Considerations: Rotation, Pricing, Costs, Transportation, SOC

Location 1: Alabama

Crops: Corn, Cotton, Rye (Cover)

Biofuels Feedstocks: Corn Stover, Corn Grain, Rye Biomass

Considerations: Rotation, Pricing, Costs, Transportation, SOC, Biomass Removal

Economic Management of a Rye Cover Crop Prior to Cotton (Shorter, AL 2005)

