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U.S. Department of Transportation

SunGrant INITIATIVE

Northeast Region

BIOMASS FEEDSTOCK PRODUCTION IN THE NORTHEAST: ECONOMIC AND ENVIRONMENTAL IMPLICATIONS

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The goal of this project is to assist landowners and land managers, their technical advisors, and policy developers in evaluating options for dramatically increasing the biomass productivity of landscapes in the Northeast Sun Grant region. The analyses were conducted at three scales: 1) field & farm scale, 2) watershed & biorefinery scale, and 3) Northeast regional scale.

FIELD & FARM SCALE: The analysis will predict feedstock production potential and effects at farm scale using DAYCENT (field scale-biophysical model – carbon, nitrogen fluxes, energy bal). Then, DAYCENT predictions are compared with *data-base driven tools:*

IFSM (whole-farm scale mechanistic model -growth, harvest, handling, storage)

I-FARM – (whole-farm scale – biophysical & economic model)) to simulate feedstock production..

Predict financial gains and losses at farm scale. Develop biomass farm profit optimization report by state, Biomass production roadblocks report by state, Guidelines for biofuels investment at farm level by state, Identify incentives that promote profitable production of biofuels in Northeast.

REGIONAL and BIOREFINERY SCALES: The project will develop scenarios of regional biomass supply chains and processing facilities, analyze technical/economic feasibility of regional biomass processing facilities RBMPF, and develop 3 test location/scenarios for northeast RBMPF, identify factors for success; Geospatial - SWOT analysis on regional level (near term 5-10 y, and 20-30 y),

biomass feedstock production capacity, potential effects of northeast region fuel production on: food, feed, fiber production capacity Regional variation in energy inputs/outputs including transportation fuels Net GHG emissions, water and air quality impacts

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