

A Biophysical Model of Yields of Bioenergy, Rangeland, and Pastureland Plants

Jim R. Kiniry

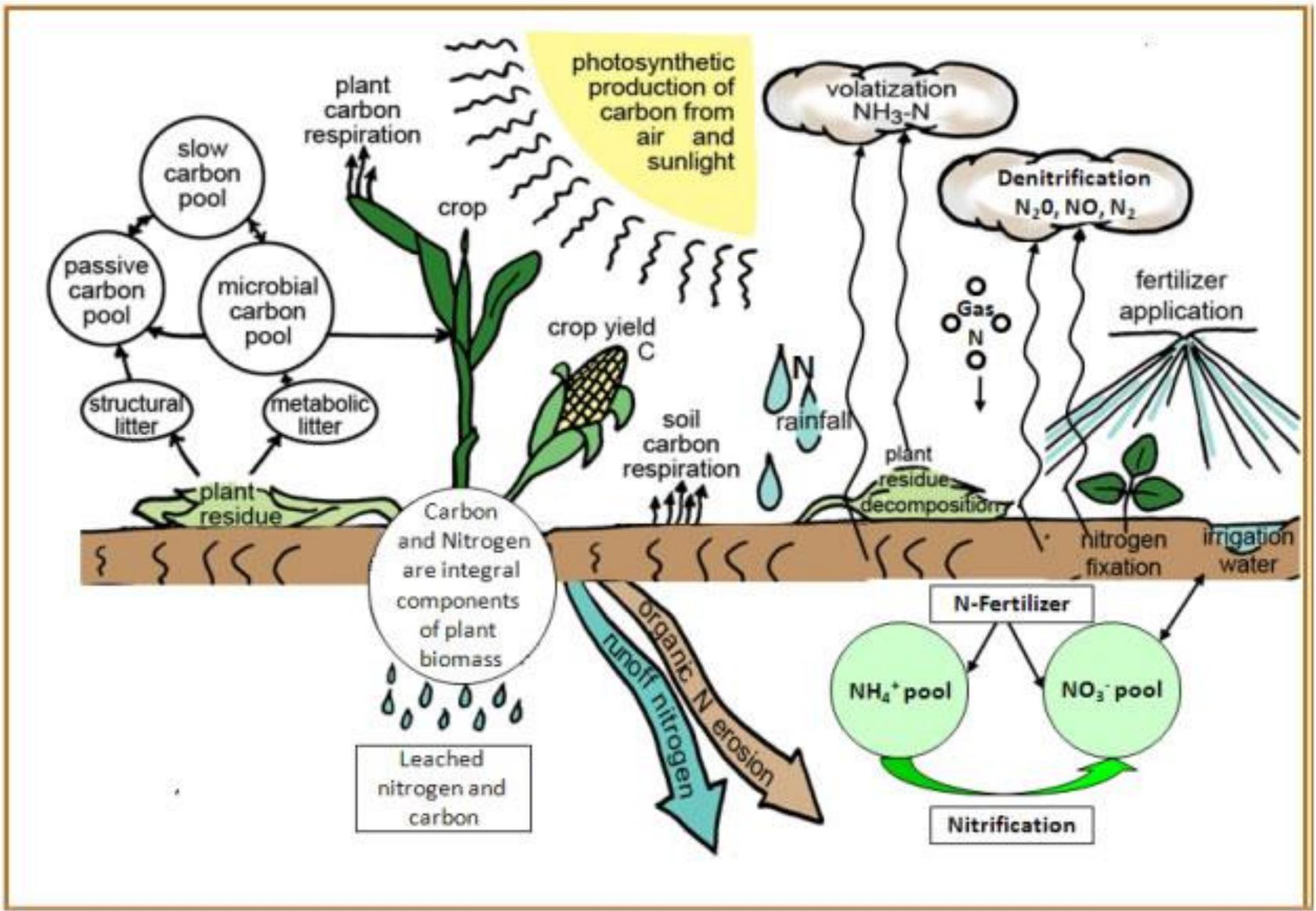
Southeast Regional Co-Coordinator of USDA Biomass Research Centers



Developing and validating simulation model crop parameters for oilseed crops



Kate Behrman
Jim Kiniry



Use the **ALMANAC** model to

- **Predict biofuel production on various sites and associated environmental impacts(Hawaii, Great Plains).**
- **Determine the area, management, and nutrient input required for production of many biofuel species for the Navy, etc.**

ALMANAC Capabilities

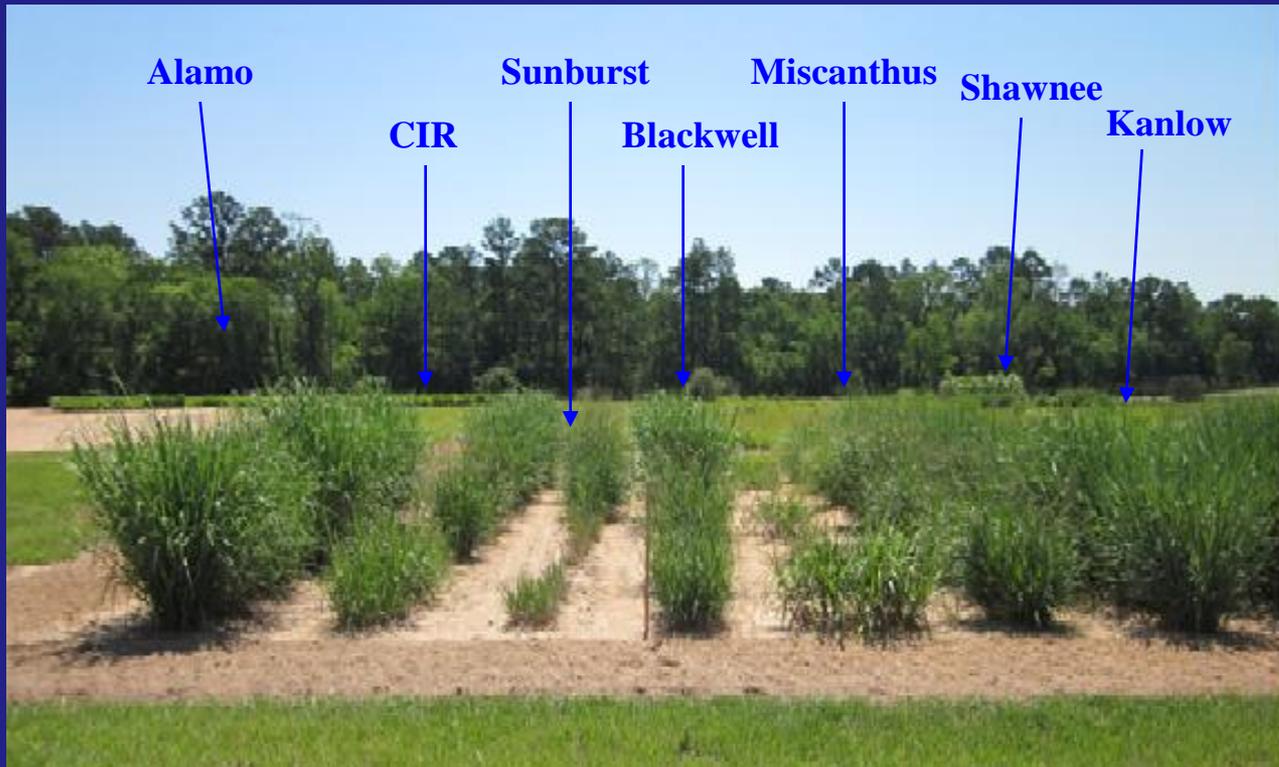
- **Crop parameter validation to simulate many plant types (perennial grasses, energy cane, canola, camelina, energy sorghum).**
- **Functional across various soils, latitudes, and rainfall zones.**
- **Accurately simulates nutrient and water demands.**
- **Capable of simulating productivity under future climate scenarios (Behrman's work).**

10 Site Switchgrass Field Trials

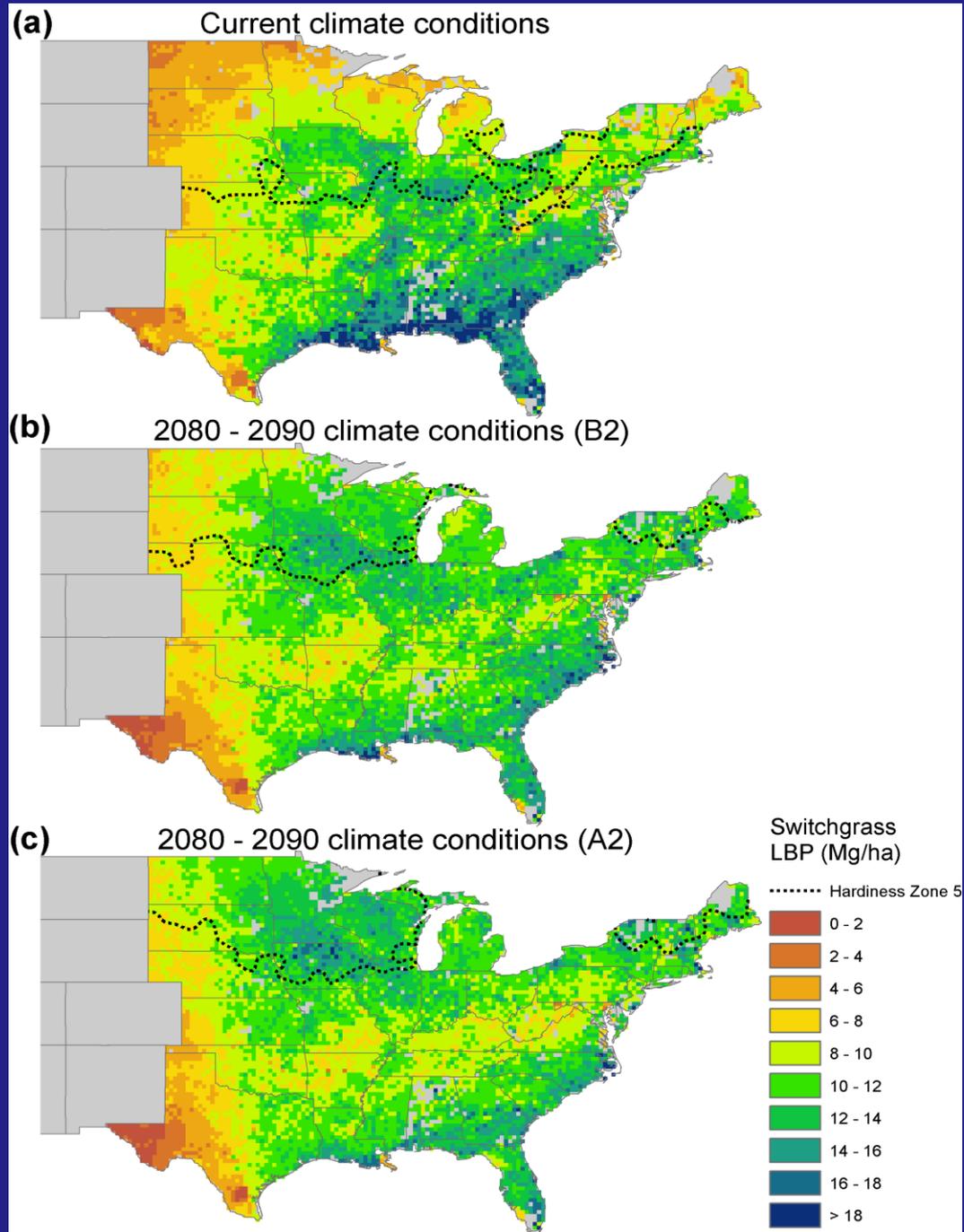
Nacogdoches, TX

Cooperator: Alan Shadow

USDA-NRCS, East Texas PMC

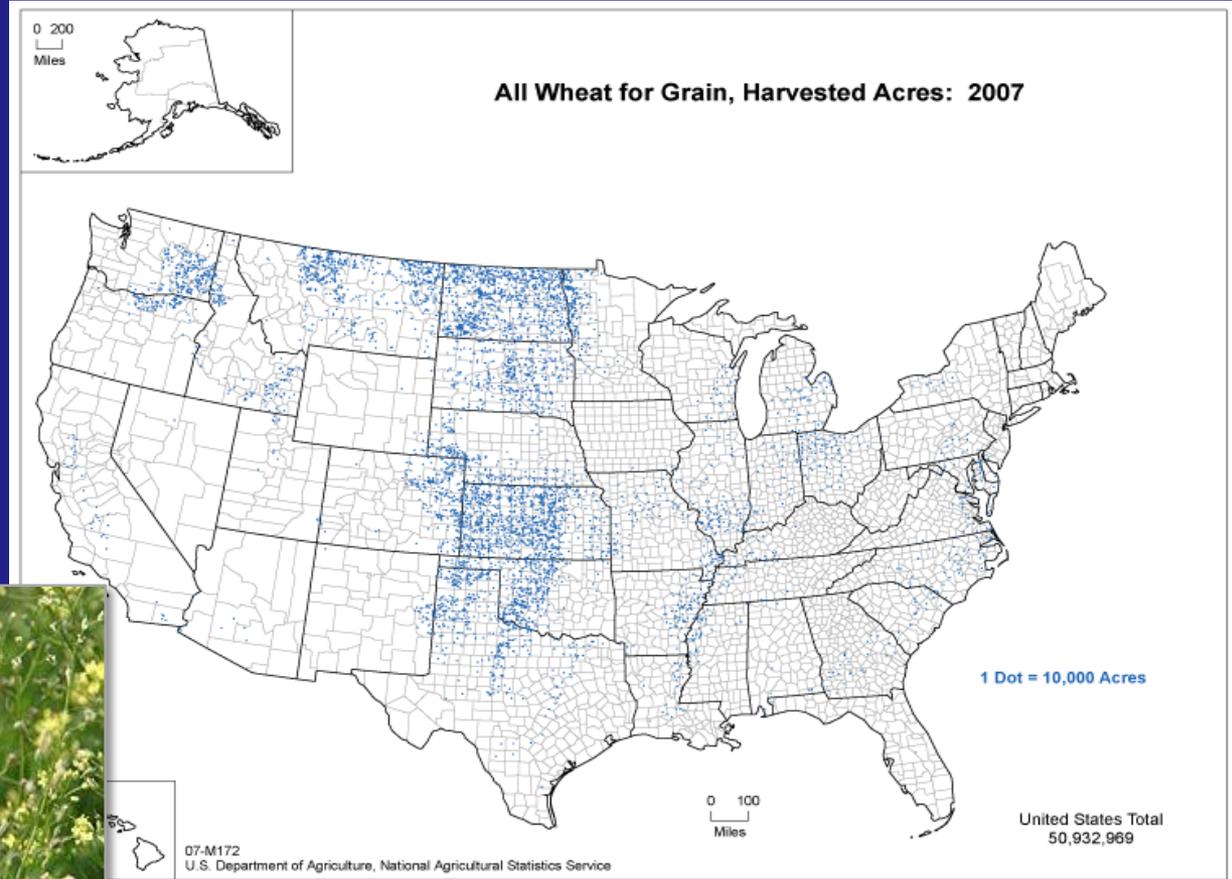


Yields Change Over Time



ONR Oilseed Project

Research Location	USDA Plant Hardiness Zone
Ames, IA	5
Morris, MN	3
Parlier, CA	9
Temple, TX	7
Maricopa, AZ	9
Akron, CO	5
Mandan, ND	4
Sidney, MT	3
Pendleton, OR	6
Moscow, ID	5



Picture of Field Trial Design

Spring 2013

Morris, MN





Candidate Perennial Energy Crops



Gathering Crop Parameter Data

