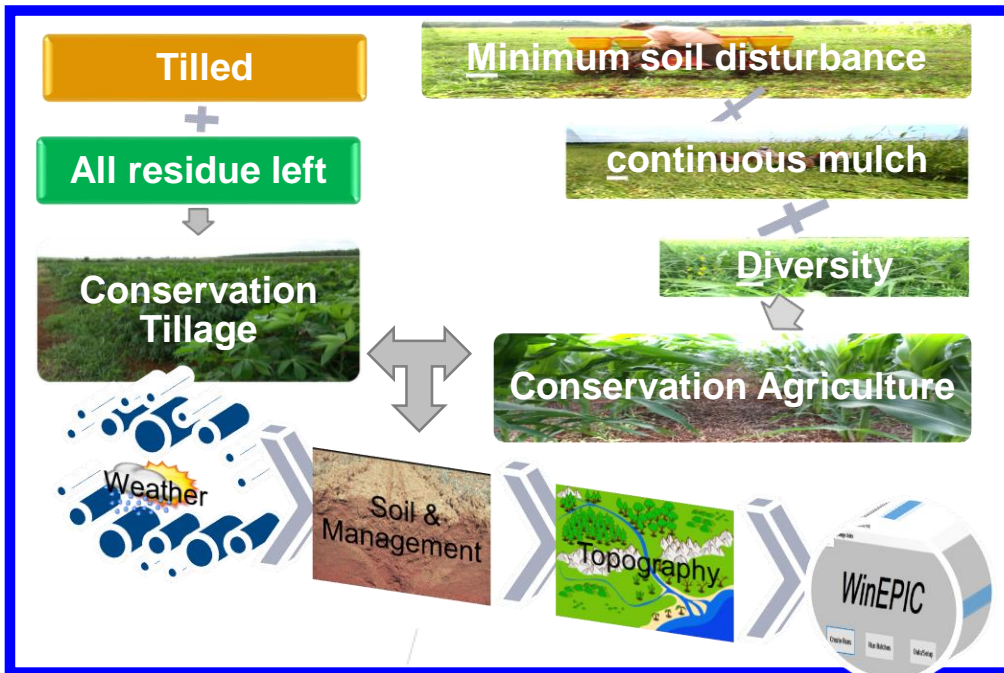


Kieu Ngoc Le

Department: Energy & Environmental System

Title: "Soil Organic Carbon Modeling with the EPIC Model for Conservation Agriculture & Conservation Tillage Practices in Cambodia"

Major Professor: Dr. Manoj K. Jha



Funding sources for this research include: USAID SANREM Innovation Lab; Virginia Tech; USDA NIFA SPECA; USDA NIFA 1890 Capacity Building Grant; USDA NIFA, NCSU; and USDA NIFA Evans-Allen, Programmer d'Actions Multi-Pays en Agroécologie (PAMPA, French Agency for Development, Ministry of Foreign affairs and French Global Environment Funds)

RESEARCH QUESTIONS / PROBLEMS:

- Sequestration of soil organic carbon (SOC) from cropping systems under conservation agriculture with various crop and land management treatments
- Climate variability (current and projected future) impacts on SOC sequestration

METHODS:



RESULTS / FINDINGS:

- EPIC based modeling of cropping systems successfully replicated crop yields and SOC of soybean, upland rice, maize, and cassava.
- SOC sequestration was successfully simulated for each treatment.
- The impacts of cropping systems and crop rotations on SOC were higher than the impact of projected future climates.

SIGNIFICANCE / IMPLICATIONS:

- Conservation agriculture sequesters more SOC than conservation tillage
- Rice cropping systems sequester significant amount of SOC compared to soybean and cassava systems