

RENDEZ-VOUS

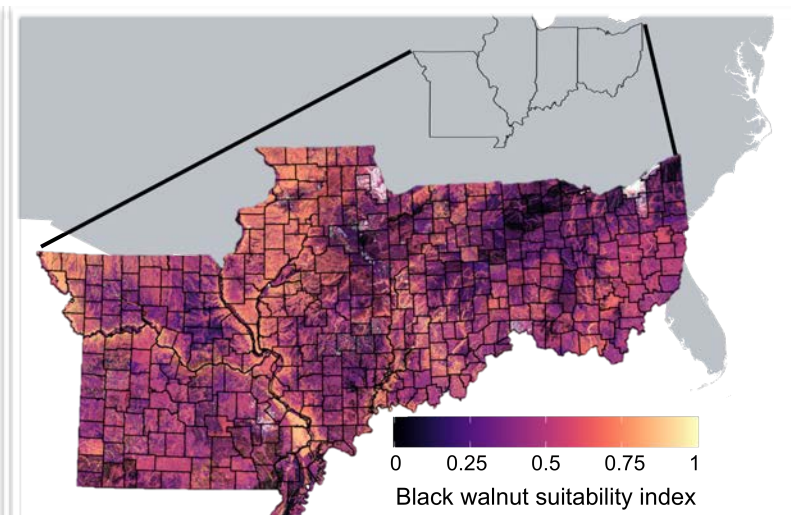


7 novembre 2017 : 10 h-12 h
Amphithéâtre d'Agropolis

Frontiers of agroforestry in the Midwest US: Merging economics and ecology

Intervenant : Kevin Wolz, INRA - UMR System

Alley cropping (AC, also called "silvoarable") – an agroforestry practice integrating trees with crops – is a transformative land-use alternative that has great potential to mitigate climate change, restore ecosystem services, and improve agricultural profitability. Given the lack of robust market mechanisms to monetize ecosystem services, profit remains the central driver for adoption of sustainable agricultural strategies. In a high-resolution spatial analysis, I evaluate whether the profitability of the most common temperate AC system – walnut trees for timber with annual grain alley crops – could drive conversion of the maize-soybean rotation to AC in the Midwest US. Even without monetization of environmental benefits, I demonstrate that AC can improve landowner profitability across a substantial area. Next, I explore two promising frontiers in temperate AC research that broaden its limited focus on systems that integrate only one timber tree species with one annual grain species: (1) woody polycultures and (2) tree crops for food and fodder. I examine key considerations for practical application of these frontiers including: (1) leveraging nut trees as staple crop analogs, (2) practical multispecies designs, (3) plant breeding for niche complementarity, and (4) quantitative yield projections. Finally, I present a specific example of the direct ecological benefits of diversified, food-producing AC. In a side-by-side field experiment with row crop agriculture, I show that transitioning to AC can rapidly reduce nitrate-N and nitrous oxide losses even during establishment years.



Animation scientifique agroécologie

Intensification écologique des systèmes de culture

Au travers de séminaires/débats, des unités et UMR d'agronomie de Montpellier (Cirad, Inra, Ird et Montpellier SupAgro) vous proposent, en partenariat avec Agropolis International, une animation collective transversale mensuelle autour de l'intensification écologique des systèmes de culture.

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