

RESEARCH PRIORITIES IN SOIL HEALTH AND CARBON STORAGE FOR PRODUCTION OF BIOENERGY CROPS

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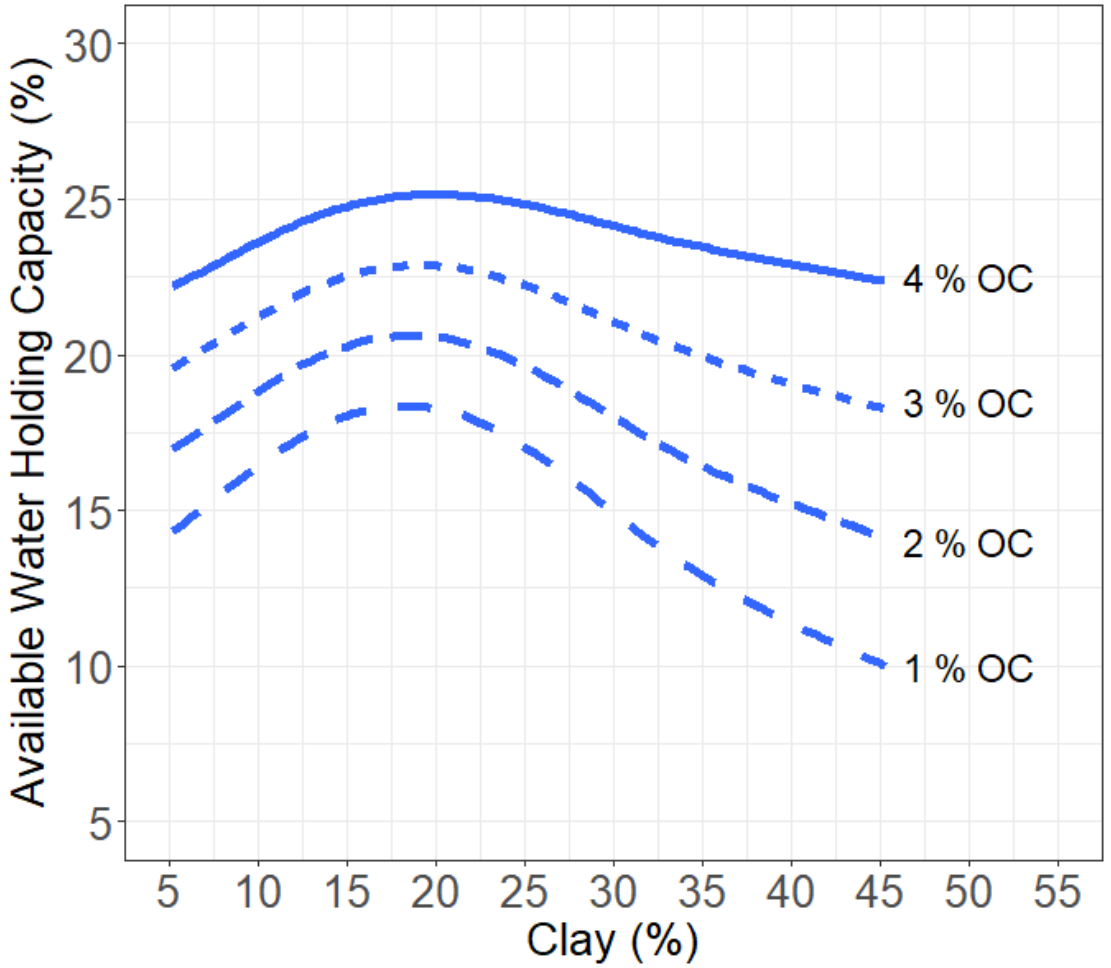
Drought Resilience



Practice Principles

1. Minimize Disturbance
2. Keep Living Roots
3. Keep Soil Covered
4. Diversify
5. Integrate Grazing (appropriately)

Bioenergy and Soil C

- Removing the Biomass
- Compacting the soil

-/+ Change in Land Use

-/+ Change in N use

\+ Minimize Disturbance

\+ Keep Living Roots

\+ Keep Soil Covered

\+ More Photosynthesis

Research that Supports Policy

Removing the Biomass

- C Water Nutrient cycling
- LU change Nitrogen! (more N more GHG, optimal N optimal soil C)
- Increase Photosynthetic allocation to soil (Deeper roots; More root exudate)

Research that Supports Policy

Measurement at Scale

Yes we can measure soil C

We are not ready to scale

1. Commercial Lab interoperability and Lab consistency

   - **Commercial** Soil testing labs shift (soil fertility test to soil C tests)

2. *In situ* Measurement

   proximal soil sensing + remote sensing

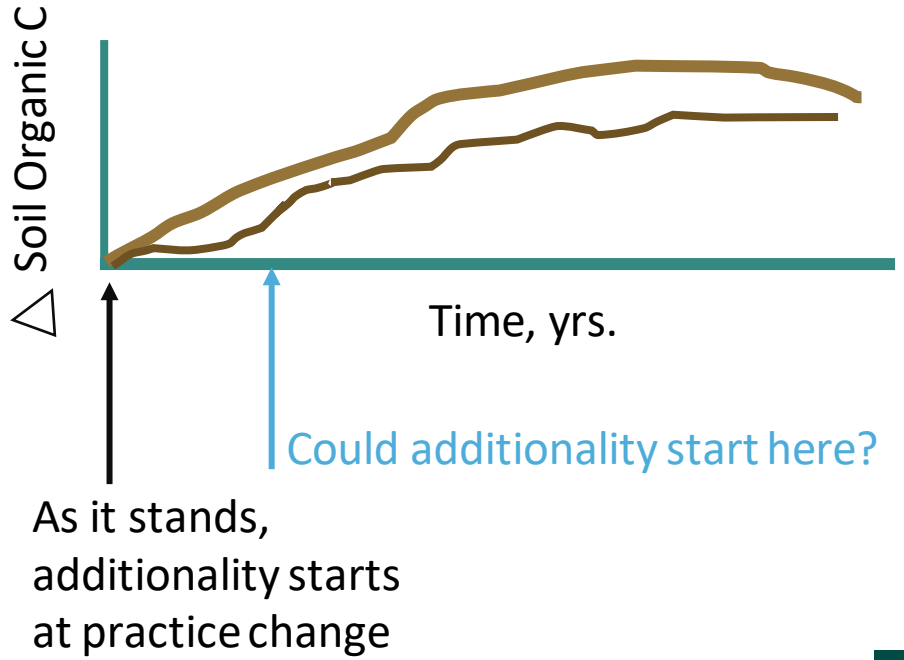
   Soil C concentration

   Soil Bulk density

Research that Supports Policy

Other Things Policy can Impact/Define

1. Additionality
    1. Biomass production may include land use change
    2. Soil C <u>increase</u> does require a practice change



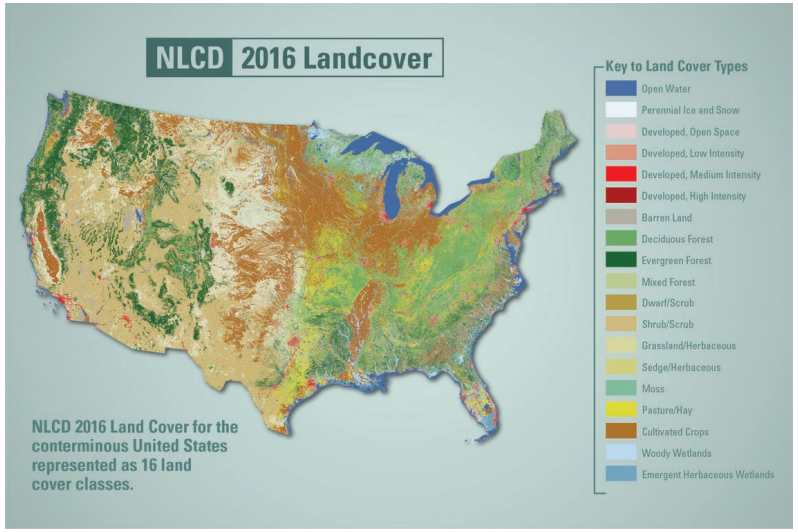
How to optimize the location for Biofuel production?

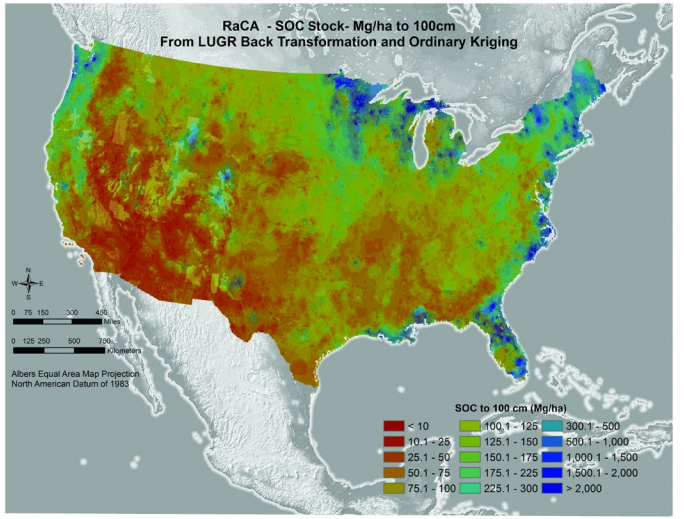
land use change

soil C increase

soil improvement

ecosystem services





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