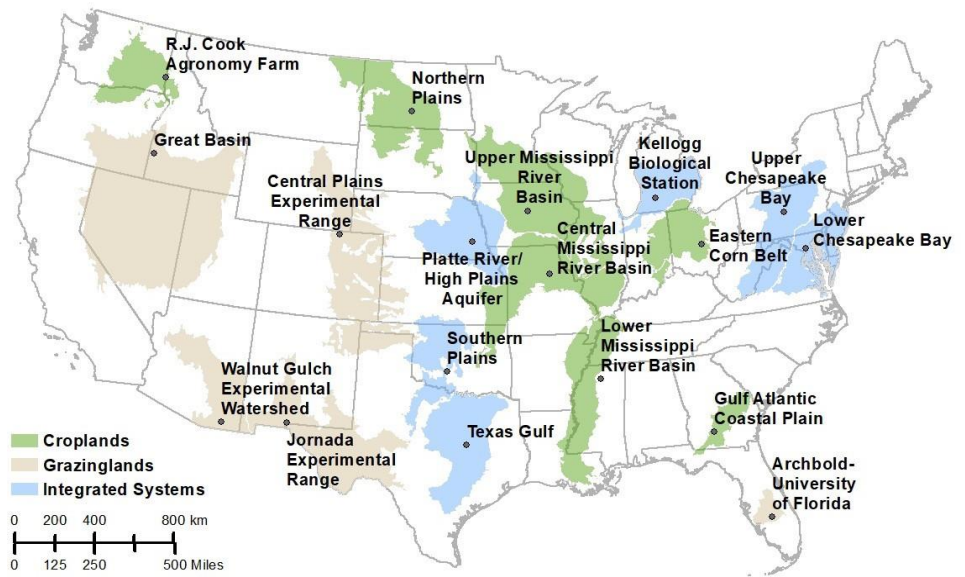


W.K. Kellogg Biological Station (KBS) Long-Term Agroecosystem Research

The KBS LTAR site is part of the USDA's LTAR network, established to develop national, long-term strategies for sustainable agricultural production.

- What practice changes are needed to adapt to and mitigate climate change?
- Can we better design production systems to deliver multiple ecosystem services?
- Can modern crop and livestock systems be integrated and better managed to provide better outcomes?



<<National program website: ltar.ars.usda.gov

Can Michigan agriculture be profitable & economically sustainable?

- We use research and stakeholder-input to compare the short- and long-term trade-offs of conventional agriculture (Business as Usual) to a system for the future (Aspirational Cropping System), which was designed by leaders in Michigan agriculture to represent “what Michigan ag could look like in 30 yrs.”
- This aspirational system seeks to maximize crop diversity, nutrient circularity & efficiency, animal integration, keep roots in the ground, and protect the soil.

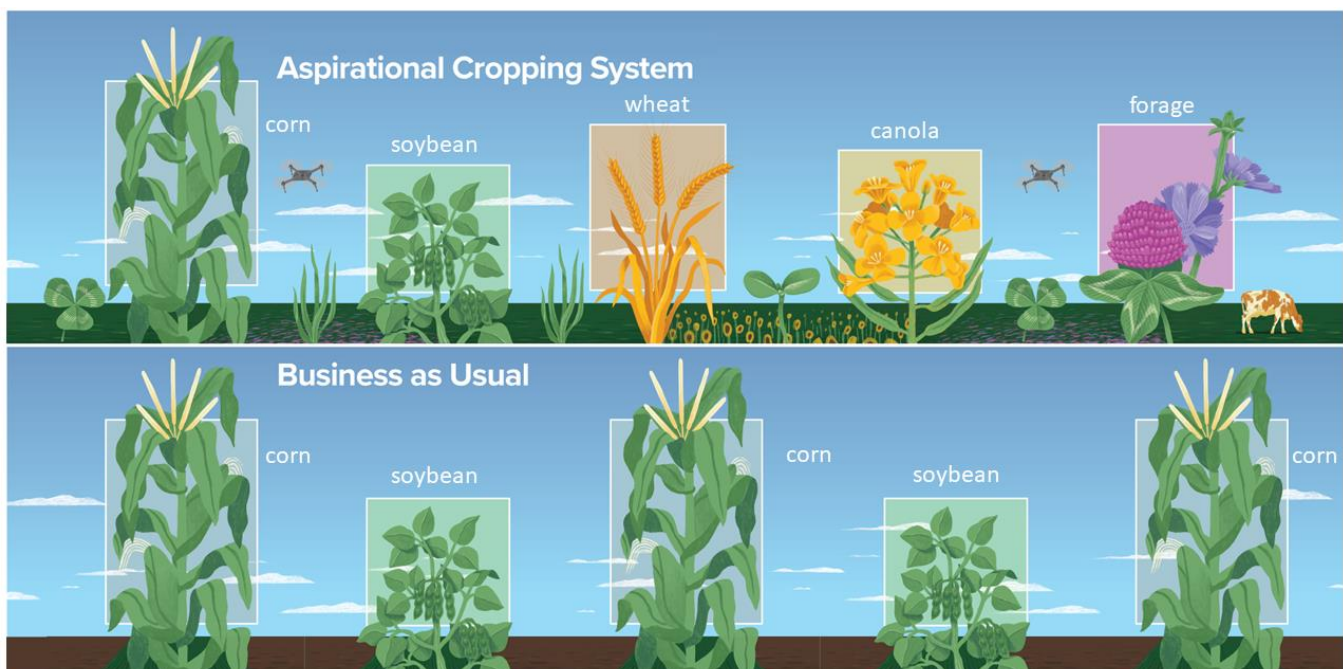


Illustration showing the main experiment at KBS LTAR, established in 2022. Credit: Trevor Grabill

We collect data over the long-term to compare how these systems affect environmental & social wellbeing.

- A team of interdisciplinary scientists and stakeholders are collecting data every year to identify and compare the success of these agricultural systems.
- While only in year two, this LTAR experiment is uniquely valuable because it will ask these questions over decades and, thus, be able to identify both the short- and long-term trade-offs in economic and environmental benefits.

Priority measurements at the KBS LTAR and across the network:

- Biodiversity
- Productivity
- Soil health
- Water quality
- Air quality
- Economics
- Human well-being



< Researchers capture insects in prairie strips within a wheat field. Prairie strips provide an opportunity to convert unprofitable areas into biodiversity hotspots that build soil health. Photo credit: Kurt Stepnitz



< Researcher uses automatic chambers to measure greenhouse gas emissions. Agriculture has large impact on greenhouse gas fluxes; we hope to mitigate this with improved management decisions. Photo credit: Kurt Stepnitz

We collaborate with stakeholders to ensure research is relevant & useful.

A 15-member stakeholder advisory board guides the direction and priorities for research at the KBS LTAR. This team represents leaders in Michigan agriculture, including farmers, NGOs, agribusiness, state and federal agencies, and Extension.

Scientists and the stakeholder advisory board identified our shared purpose of:

Bridging the gap between the agricultural systems needed by present and future generations.



Field tours are a great way to showcase our research and get input from external partners and scientists.

In 2024 over 80 scientists & stakeholders collectively identified research priorities for the KBS LTAR, including*:

- What metrics can be used to best quantify and monetize the ecosystem services delivered by diverse rotations?
- How can no-till be implemented to fit into diversified farm approaches and crop rotations?
- Which soil health indicators can quickly and reliably predict improved ecosystem function to inform management decisions?

*check our website in Winter 2024 for the complete list of KBS LTAR research priorities

Interested in visiting or collaborating?



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