Kellogg Biological Station
Long-Term Agroecosystem Research

2025 KBS LTAR WINTER SUMMIT REPORT

JANUARY 17, 2025

Report compiled by Tayler Ulbrich,
KBS LTAR Associate Director for Engagement

Executive Summary

On January 17th, 2025, eight-five participants joined the KBS LTAR for our second annual Winter Summit for Scientists and Stakeholders. The purpose of the Summit was to: further explore priority research topics that were identified at the 2024 Summit, identify emergent synergies with the community, and strengthen relationships across scientists and stakeholder in the LTAR community.

For KBS LTAR leadership, the Summit additionally serves an important purpose of ensuring that the research of the KBS LTAR is on track to address key issues that advance sustainable row crop production in the Upper Midwest.

This report serves two purposes:
1)to provide a detailed description of the Summit, including the presentations and focus groups, and
2) to serve as a broad outline of opportunities to guide the KBS LTAR research and outreach efforts. These opportunities will be incorporated to an existing effort to create a white paper and database that tracks stakeholder-informed research priorities for the KBS LTAR.

Summit Overview

The 85 participants represented many stakeholder groups across the agricultural supply chain, as highlighted in Figure 1 and in Appendix Table 1. We were excited by the diversity of groups represented, but recognize a need to increase scientist participation to truly facilitate co-production of research.

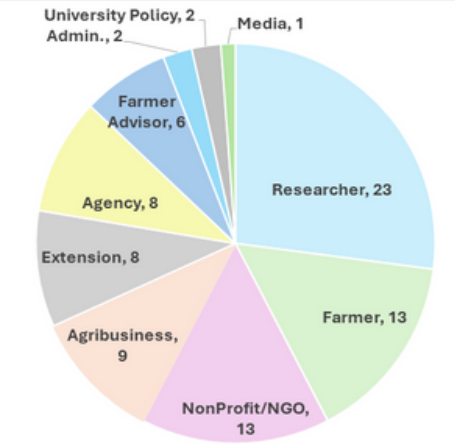


Figure 1. Pie graph showing distribution of groups represented at the 2025 KBS LTAR Summit. Numbers are counts.

The day started off with lightning talks from scientists and practitioners on topics including farm profitability, cover crops, field variability, no-till, greenhouse gas mitigation, and soil health. Following the talks, participants split into morning focus groups to discuss the key areas of synergy between scientists and stakeholders, as well as opportunities for further collaboration and research. Following lunch and networking, participants chose the subject of the afternoon focus groups. Several focus group conversations continued from the morning, including conversations about farm economics and soil heath. New topics also emerged as central to this group - including agrivoltaics, canola and farmer networking.

Summit participants hear research updates during lightning talks (left), and network between sessions (right).

Lightning Talks

Morning lightning talks provided scientist and practitioner perspectives on key research themes that align with research priorities identified at the 2024 Winter Summit. Presenters discussed how the LTAR is currently researching the economic and environmental sustainability and feasibility of aspirational treatments, while local farmers, members of local NGOs, and food companies provided insights to how these conservation practices relate to their work on-the-ground.


Brook Wilke


Carl Wagner III

Designing profitable systems that support farmer well-being & resilience

- Brook Wilke – Associate Director for KBS LTAR Science & Agronomy
- Carl Wagner III – Farmer and owner of C3 seeds


Cade Klein


Jennifer Blesh

Cover crop adoption for ecosystem services

- Cade Klein – Member of KBS LTAR Stakeholder Advisory Board, farmer, and seed salesman
- Jennifer Blesh – Member of KBS LTAR Systems Integration & University of Michigan Associate Professor


Bruno Basso


Marc Hasenick

Managing field variability for profit

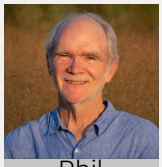
- Bruno Basso – Member of KBS LTAR Scientific Steering Committee & MSU Professor
- Marc Hasenick – Member of KBS LTAR Systems Integration Team and farmer

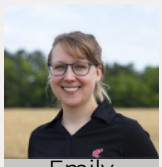

Jason Stegink


Christine Charles

No-till benefits & challenges

- Jason Stegink – LTAR Crop Advisor, member of KBS LTAR Stakeholder Advisory Board, and owner of Wide Angle Agriculture
- Christine Charles – Member of KBS LTAR Stakeholder Advisory Board and MSU Regenerative Cropping Systems Extension Educator

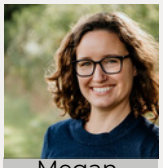

Phil Robertson


Emily O'Halloran

Greenhouse gas emissions & opportunities for climate mitigation

- Phil Robertson – Director of KBS LTAR & MSU Professor
- Emily O'Halloran – Member of KBS LTAR Stakeholder Advisory Board and Kellanova Responsible Sourcing Lead for North America


Christine Sprunger


Megan DeLeeuw

Soil health management & monitoring

- Christine Sprunger – Member of KBS LTAR Scientific Steering Committee & MSU Associate Professor
- Megan DeLeeuw – Soil, Water & Climate Manager for Michigan Department of Agriculture & Rural Development

Focus Groups

Following the lightning talks, morning focus groups on the presentation topics allowed scientists and stakeholders to discuss current efforts and needs related to the lightning talk topics. In the afternoon, participants decided on the focus group topics, giving an opportunity for new topics to emerge. These topics included: soil health (continued), incentivizing and sustaining climate mitigation in farming (continued), economics of innovations (continued), agrivoltaics, canola, and farmer support/peer-networks. The afternoon sessions were tasked with discussing "If we're successful – what do MI farms look like related to this topic in 10 years?"

Four themes emerged from the morning and afternoon focus groups, including:

Document and share the early successes

Across the focus groups, participants described a need to identify metrics, as well as visual indicators that can help farmers detect early benefits of conservation practices such as no-till and cover crops. Adoption rates have plateaued or simply rotated among acres, and there is an opportunity to highlight stories from farmers that have maintained adoption.

Improve state-wide coordination and transparency

Participants were motivated by the many diverse efforts working towards soil health and climate adapation, but they also emphasized the need for coordination and transparency; including for protocols, farmer networks, and resources. Farmers are unclear about who/where to go to for resources and duplicated, uncoordinated efforts may limit our ability to effectively scale efforts across the state.

Make a case for the value of the aspirational system

Across the supply chain, we need evidence for the value of conservation practices including their economic return, social benefit, ecosystem outcomes, and marketability. Additionally, participants described a need for alternative markets and marketing platforms (e.g. co-ops) to increase economic resilience for new crop types and cover crops.

Provide regionally-relevant guidance

Participants were motivated by the momentum behind soil health and climate mitigation, but noted that there is a need to provide regionally-relevant guidance on conservation practices. Farmers need to know how practices work in their own region and soil type. There was enthusiasm around connecting researchers with existing farmer peer-to-peer networks to support on-farm, regionally-relevant research.

Focus Group Summaries

Below, we summarize each of the focus groups, and highlight the opportunities for the KBS LTAR. The KBS LTAR can support these topics through research, outreach, and building relationships.

Soil Health (AM & PM Focus Group)

The group was excited by the growing momentum about soil health from researchers, farmers, policy, and corporate entities, but acknowledged the lack of coordination and transparency. There is enthusiasm about scaling efforts across the state, but a need for science to inform the best indicators, as well as how to use them to guide on-farm management. While there are many networks of farmers working with scientists, groups are often siloed, and the movement would benefit from coordinated farmer-research networks, as well as transparency about who is doing the work, how to work together, and how to fund ongoing efforts.

Opportunities for KBS LTAR:

- Research
  - Demonstrate how management practices affect soil health, as well as about the economic benefits of soil health (e.g. fertilizer reduction).
  - Provide guidance and protocols for the best lab-based and visual indicators of health soils across soil types/regions of Michigan.
  - Provide data and stories about the barriers limiting and resources needed to support farmer adoption of soil health practices.
- Science Translation/Outreach
  - Make standardized protocols for soil health indicators publicly available.
  - Provide resources that highlight the data, as well as stories, for how and why to adopt soil health practices – targeted at farmers, advisors, and sellers of products.
- Relationship Support
  - Be a hub for individuals and organizations working on soil health to meet and share ideas and opportunities (e.g. LTAR Summit?).
  - Provide support and coordinated communication for on-farm soil health research across the state.

Summit participants identify new opportunities for research and outreach during focus group sessions.

No-Till (AM focus group)

Participants reflected on how adoption of no-till has plateaued, and that there is a need to increase the adoption of new acres, and help existing farmers maintain adoption of no-till practices. The group also described that there is more research needed about how variations on no-till (periodic tillage, reduced tillage, etc.) impact environmental and economic outcomes.

Opportunities for KBS LTAR:

- Research
  - Share data and stories about what limits the long-term success of no-till, and how this varies across soil types and regions.
  - Provide guidance on the methods and impact of integrating other conservation practices, like cover crops and manure, into a no-till system.
  - Determine how variations on no-till (e.g., periodic tillage, reduced tillage, strip tillage) impact desired outcomes.
- Outreach
  - Highlight farmer success stories about using no-till.

Climate Mitigation and Adaptation (AM and PM focus group)

Like soil health, participants agreed that there is momentum around climate mitigation and adaptation, but there needs to be standardization and consolidation to make it useful for farmers. Currently farmers get lots of information from different groups, making it challenging to interpret. Participants also described that there needs to be an economic-case for farmers to adopt climate-smart agriculture, and that this should include the value of how improved soil carbon impacts other ecosystem services, such as water quality and crop nutrition. The KBS LTAR has an opportunity to make an economic case for the Aspirational system across the supply chain, develop and demonstrate it.

Opportunities for KBS LTAR:

- Research
  - Make an economic case for climate-smart ag for the supply chain by demonstrating how cropping systems, practices, and new crop varieties or types affect qualities desired by the supply chain including quality/nutrition, food safety, malleability, and shipability.
  - Identify what inputs to the system, such as biochar, have the potential to improve soil health and soil carbon capture.
  - Characterize how non-producing lands fit into greenhouse gas accounting.
  - Evaluate and demonstrate how climate-smart agriculture supports well-being, and when this is greater than the economic benefits.
- Outreach
  - More quickly disseminate research findings to farmers by giving 1-pagers to MDARD MAEAP technicians.
  - Identify how to support farmers not likely to come to events like this; e.g. through farmer story-telling or peer-network support.

Economics and Well-being (AM and PM focus group)

Participants discussed new avenues that may help mitigate risk and open new economic opportunities for farmers. This list includes co-ops, quality control and role of handlers in the middle, government price support via lobby, new markets, certifications for regenerative agriculture, sharing the risk with insurance companies or other entities, and incentivizing conservation practices through paying landowners. The group also identified a need to understand how social and behavioral barriers need to be better understood to facilitate adoption of conservation practices.

Opportunities for KBS LTAR:

- Research:
  - Determine the real cost of the value of land and its ecosystem services to the food sector and the public.
  - Determine the costs/profits for production and risks of switching management practices, both within the ACSE, as well as regionally.
  - Develop a financial tool to help farmers calculate profitability and financial stability and encourage behavior change, such as through precision management based on within field profitability.
- Outreach:
  - Communicate economic value of conservation practices to stakeholders and policy makers to support new opportunities for farmers.
  - Share stories - farmer stories are powerful and “humanize” the business.

Cover Crops (AM focus group)

This group discussed how, like with no-till, cover crop adoption has plateaued and rotates among acres across the state. To encourage greater adoption, there is a need for more regionally-specific guidance and research, peer-support networks, and support for new cover crop markets.

Opportunities for KBS LTAR:

- Research:
  - Develop regionally-specific science, perhaps through cover crop hubs that support on-farm research throughout the state.
  - Identify and support new opportunities for cover crop markets.
  - Research and provide recommendations on termination specifics and herbicide programs for cover crops.
- Outreach and Relationships Support:
  - Develop methods and database to track early benefits of cover crop adoption (e..g photos and story evidence of side-by-side comparisons)
  - Support community around developing new markets for cover crops (e.g. food-grade grains field day with MIAA and Extension).

Agrivoltaics (PM focus group)

While the KBS LTAR does not currently study the integration of solar panels into agriculutral landscapes, MSU researchers are interested in the topic, and stakeholder participants also expressed a need for more research. The group's conversation focused on opportunities to better understand the role of farmer and community ownership in solar projects, and the need for long-term data on the benefits and opportunities for solar in agriuclutral landscapes.

Opportunities for KBS LTAR:

- Research:
  - Identify the long-term effects of solar panels on land; particular concern around potential contamination and consequences with disposal of panels.
  - Determine and communicate opportunities for what can be grown or grazed under solar panels to provide added value to the farmer and community.
  - Compare the benefits and risks of small vs. large scale solar farms.

Farmer Networking (PM focus group)

Participants highlighted the importance of peer-to-peer farmer networks in facilitating the adoption of conservation practices, but also emphasized that starting new hubs may not be what is needed. The group agreed that it may not always be beneficial to form another new group or host another meeting and, instead, we need to ask why we're gathering and for what outcome. To this end, there may be more benefit to supporting existing farmer networks and connecting them with researchers to increase capacity for regionally-specific data collection and monitoring. Participants were also excited about the opportunity to study the science of how social networks impact practice adoption.

Opportunities for KBS LTAR:

- Research:
  - Provide research capacity to existing farmer networks.
  - Study the science of network formation and the value to increasing adoption of conservation practices.
- Relationship support:
  - Support the consolidation of resources for Michigan farmers so that they know who/how/and where they can find resources to support conservation efforts.

Canola (PM focus group)

Conversations about canola centered around agronomic challenges with pest management (e.g. slugs and other insects) and how to incorporate canola into no-till and cover crop based systems. Participants emphasized that the market for canola in Michigan exists and there is an opportunity to help it expand. Data from KBS LTAR thus far indicates under-performance of canola relative to other farms in Michigan that are using tillage and planting earlier in the summer, presenting a need for more on-farm comparative studies.

- **Opportunities for KBS LTAR:**
  - Research:
    - Provide agronomic recommendations, including pest management, as well as guidance on nutrients and inputs. These recommendations likely need to be separated for different production systems (e.g. tillage, cover crops, planting dates, etc.).
    - Establish yield history to get canola insured and publish price for Michigan.
    - Provide test plot data for different varieties, and detail into both conventional vs. aspirational systems.
  - Outreach:
    - Document and communicate about the benefits of canola in Michigan, including economic benefits, and opportunities to improve work-life balance by spreading out the workload over the season.

APPENDIX

Table of organizations represented at the 2025 LTAR Summit. **Organizers removed the names of 11 induvial farms for confidentiality.**	
ADM	Michigan Senate - Senator Shink's Office
Barry Conservation District	Michigan State University
Brownfield Ag News	Michigan State University Extension
Carter Family Associates, LLC	MSU AgBioResearch
Cushman Creek Supply	National Wildlife Federation
Environmental Defense Fund	Pheasants Forever
Geum Services Incorporated	Sackett Potatoes
Granor Farm	Star of the West Milling Co
Great Lakes Bioenergy Research Center	Tenera Grains
Ionia/Barry Conservation District	The Nature Conservancy
Kalamazoo Conservation District	University of Michigan
Kellanova	University of Michigan Water Center
Kent Conservation District	USDA-Farm Service Agency
Knappen Milling Company	Van Buren Conservation District
Mammoth Distilling	Western Michigan University
MI Craft Beverage Council	Wide Angle Agriculture
Michigan Agriculture Advancement	
Michigan Assoc. Conservation Districts	
Michigan Department of Agriculture & Rural Development	
Michigan Farm Bureau	
Michigan Milk Producers Association	