2021 KBS LTER All-Scientist Meeting

Science Breakout Themes

Participants should identify the breakout session they are most interested in participating in, and then we will divide into breakout groups depending on the demand for each session in order to keep overall group sizes down. So please choose the topic you are most excited by!

1. **Manipulating moisture - where, when, and why?**
   The LTER has 48 rainout shelters moving forward that we can use to design new experiments. What mechanisms, dependent on moisture dynamics or responses to drought stress, would be worth focusing a new experiment upon?

   Are there specific treatments that we should impose drought stress upon (e.g., using T3 and T4 to bring in cover crops, or using T5 and T6 to focus on perenniality)?

   Are there new manipulations we could perform underneath the shelters (e.g., applying manure or other soil nutrients, or planting mutant crops)?

   Are there new observations we could make within the experiment?

2. **What would you ask a farmer?**
   Our Panel Farmer Survey has a cohort of 2000+ farmers - hundreds which have responded every year, and some of which have allowed us to do in-person interviews and perform soil health assays on their lands.

   What would you ask a farmer regarding their perception of and preparation for future climate change in the Upper Midwest?

   What about the changing economics of agriculture in the Upper Midwest?

   What information (social or ecological) should we gather from a local "farm monitoring network" of farmers located in the regional vicinity of KBS?

3. **Can we manipulate biodiversity to enhance ecosystem function?**
   We demonstrated that diverse plant cover can enhance key soil health properties such as the formation of organic carbon.

   What ecosystem functions are you interested in that are mediated by biodiversity?

   What crops, rotations, or species mixes would you plant to manipulate diversity? Why?

   How would you assess ecosystem function and its responses to changes in diversity?