

# Welcome!



Sustainable Ag Field Day for 4H and  
Informal Educators  
September 26, 2017



W. K. Kellogg  
Biological Station  
MICHIGAN STATE UNIVERSITY



**KBS LTER**  
Kellogg Biological Station  
Long-term Ecological Research

# Ecosystem: living community + nonliving environment

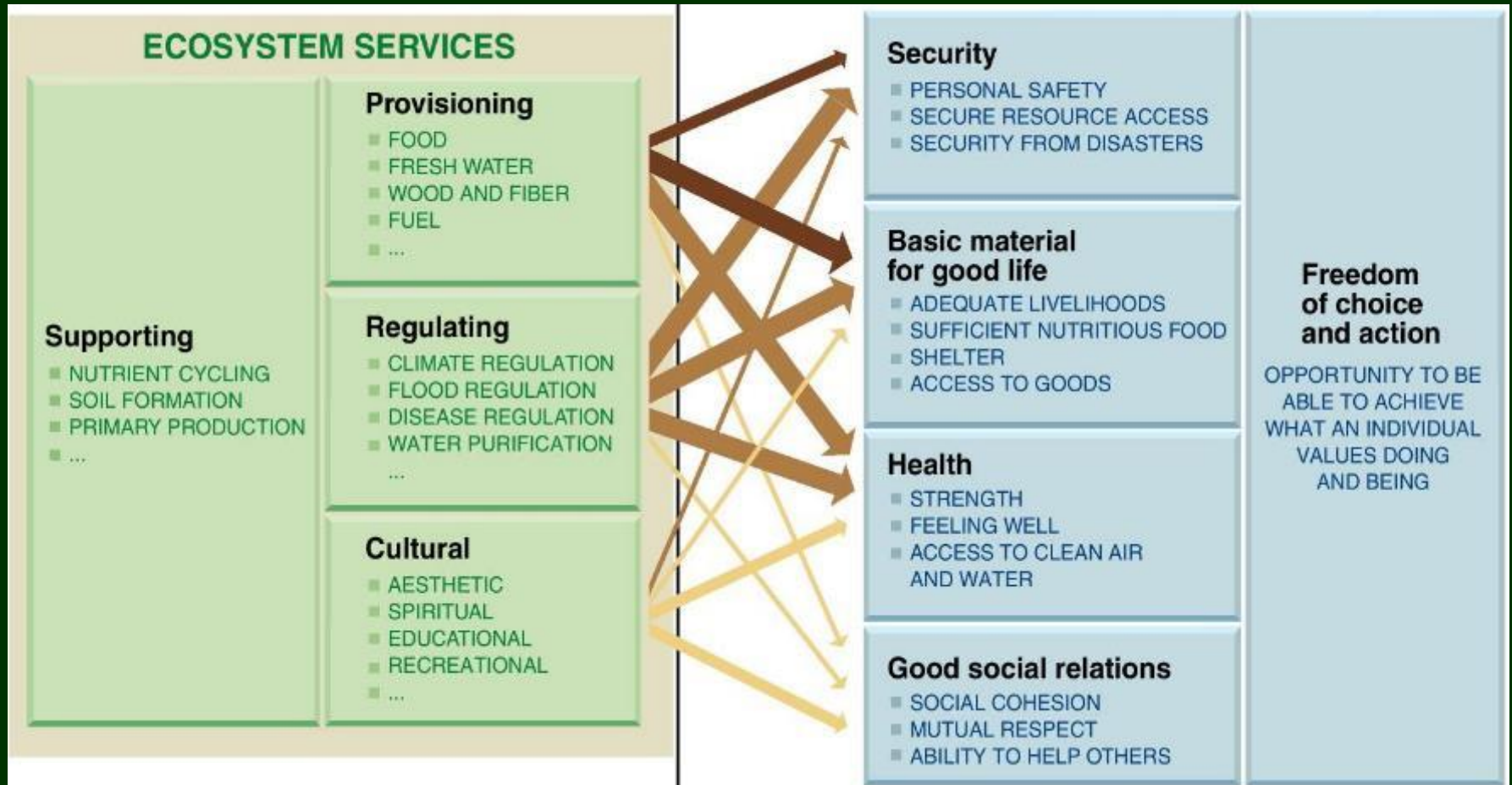




# Ecosystem services: the benefits people receive from ecosystems



# Ecosystem services and human well-being



- Everyone in the world depends on nature and ecosystem services to provide the conditions for a decent, healthy, and secure life.

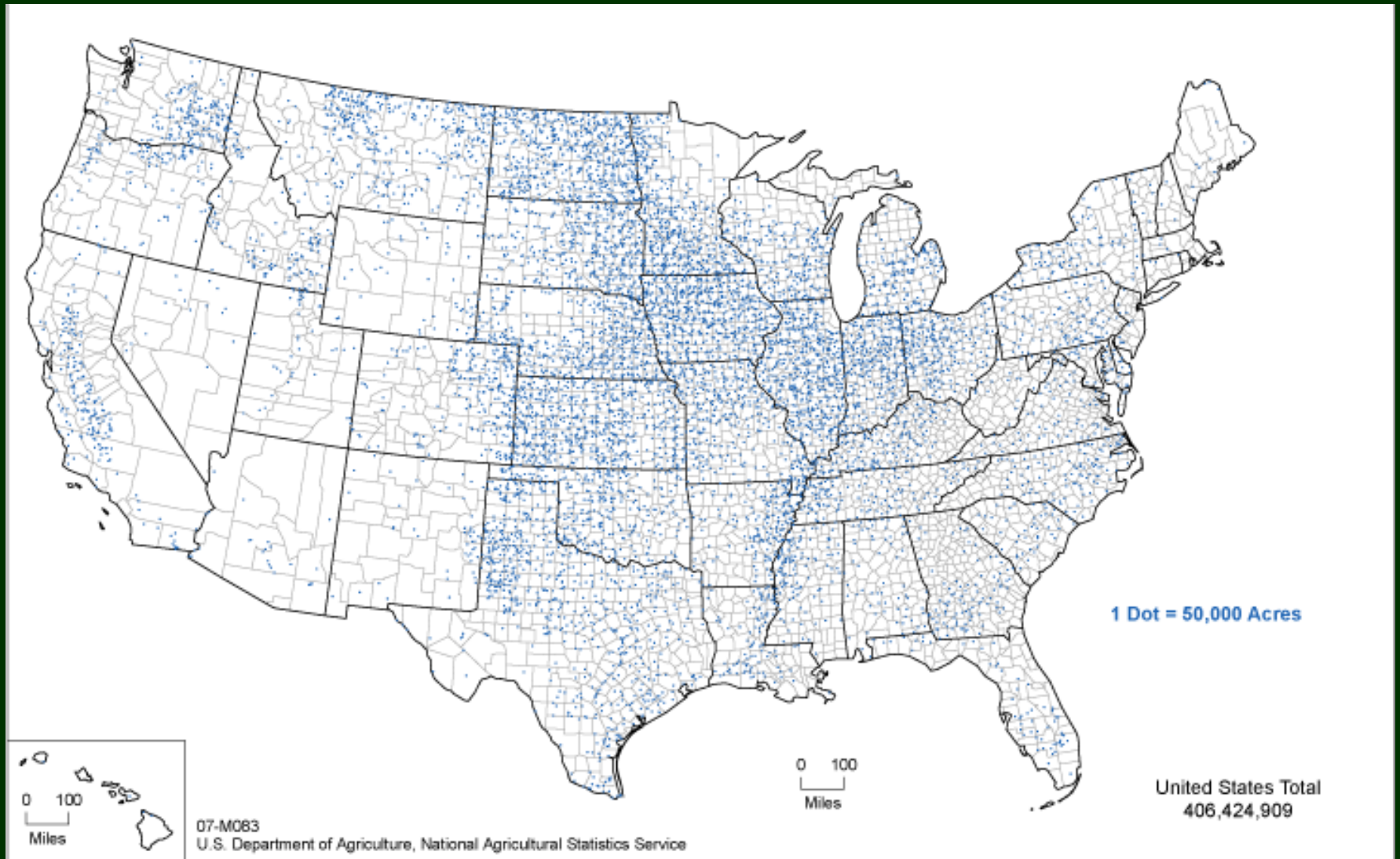
# Ecosystem services and agriculture

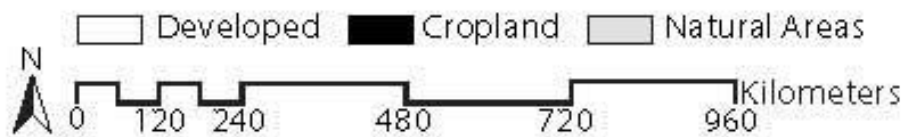
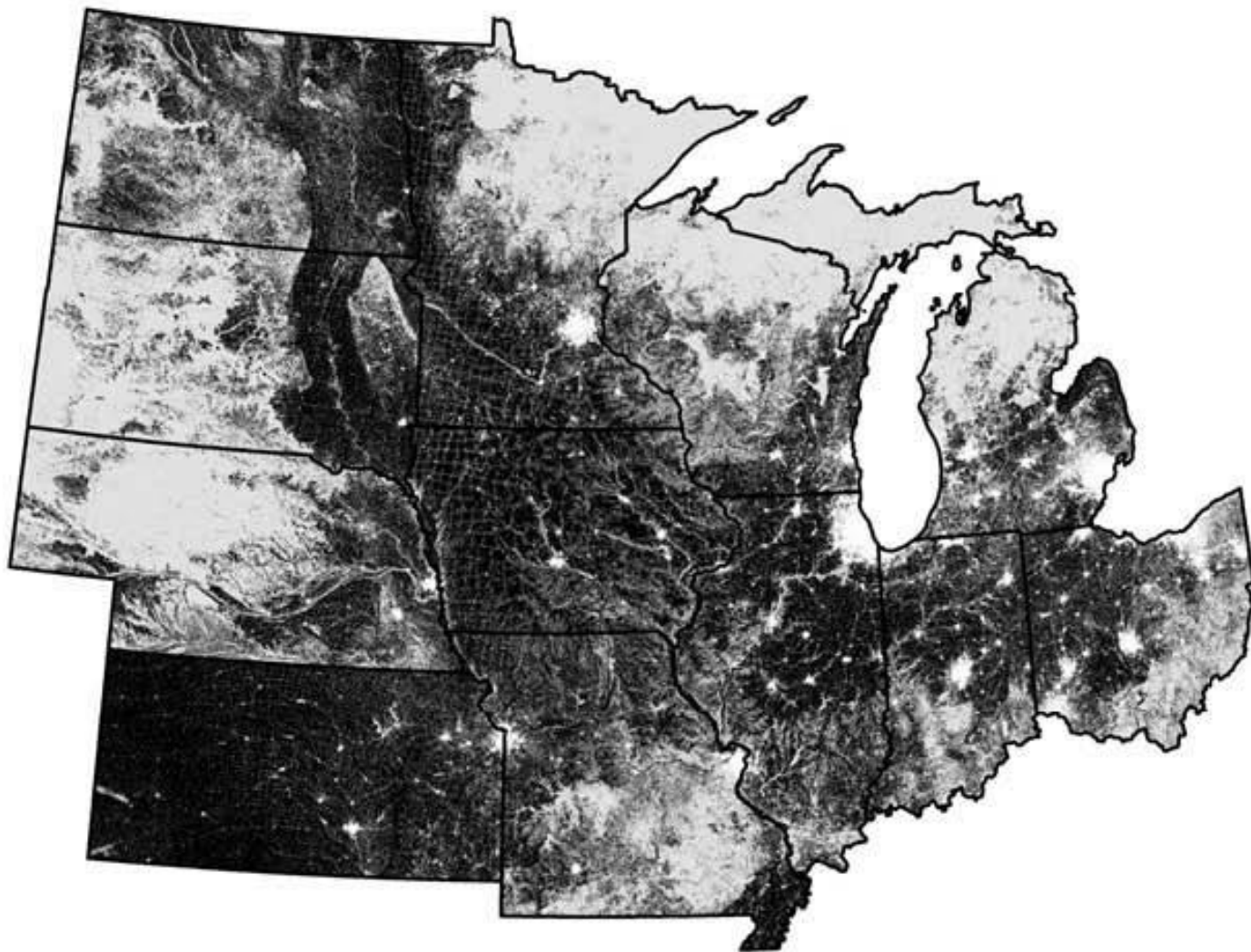


How are ecosystem services affected by different types of land management?



# Cropland in the United States





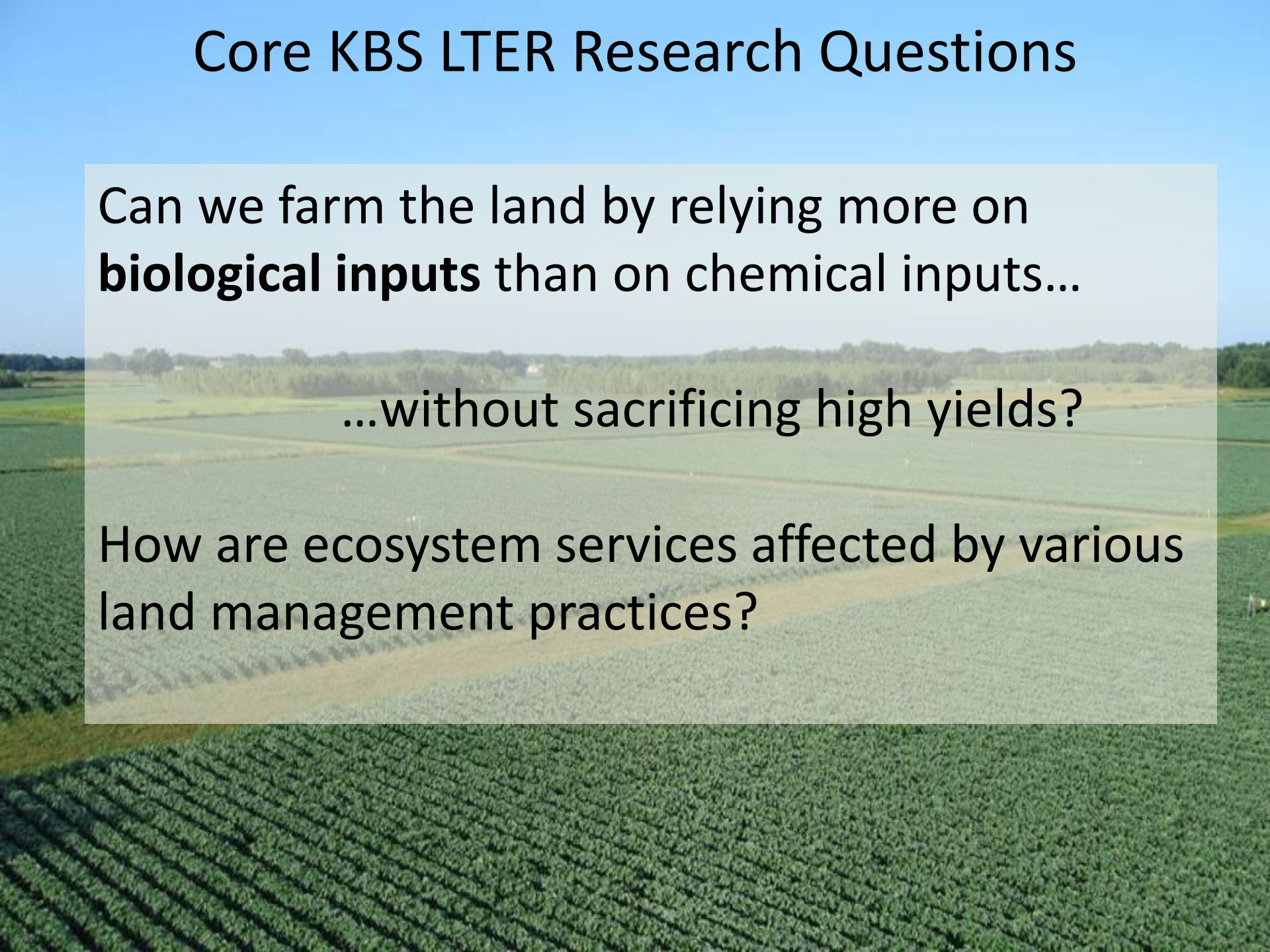
(Gage, Doll, and Safir, forthcoming)

# Core KBS LTER Research Questions

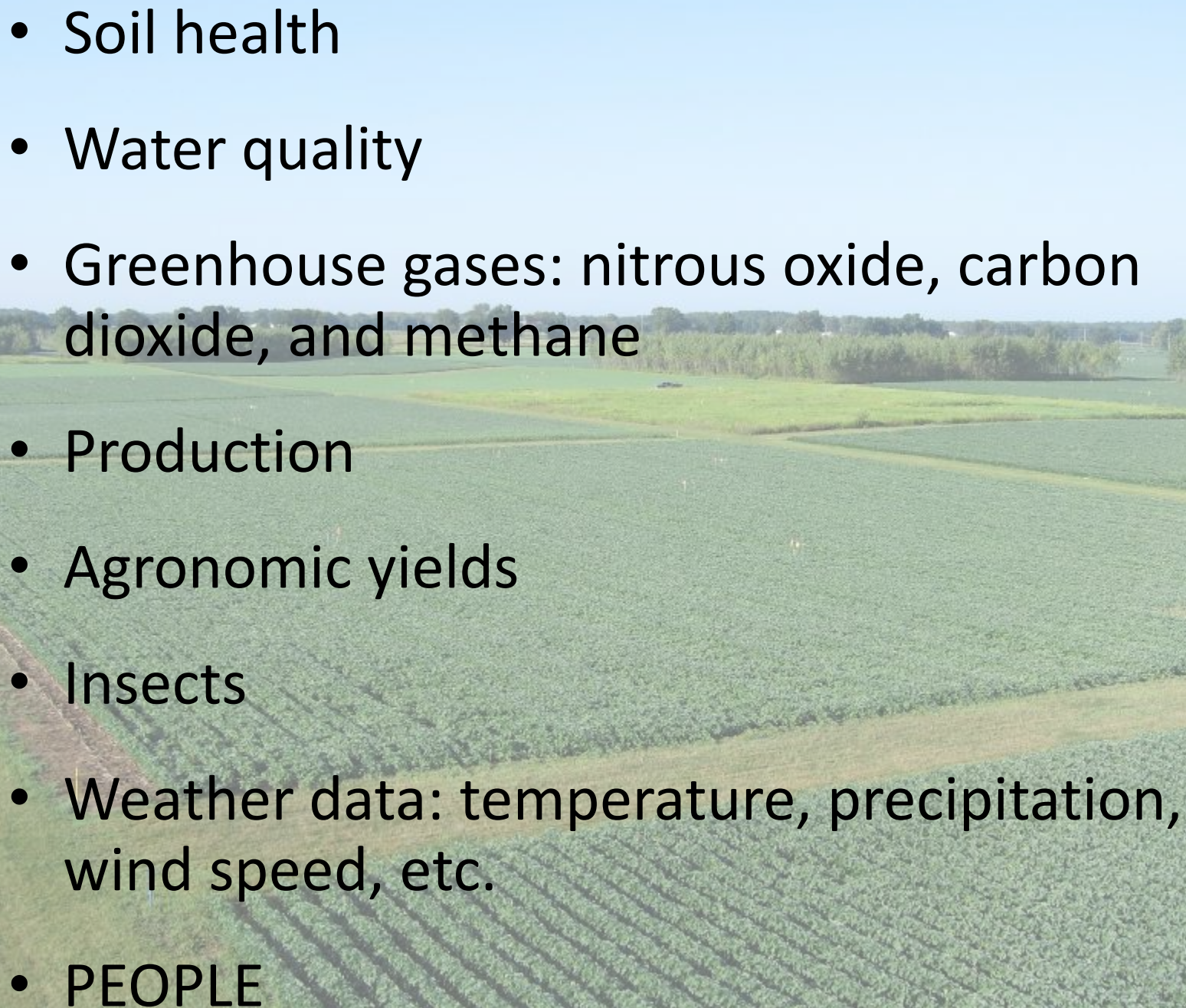
Can we farm the land by relying more on **biological inputs** than on chemical inputs...

...without sacrificing high yields?

How are ecosystem services affected by various land management practices?





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- Soil health
  - Water quality
  - Greenhouse gases: nitrous oxide, carbon dioxide, and methane
  - Production
  - Agronomic yields
  - Insects
  - Weather data: temperature, precipitation, wind speed, etc.
  - PEOPLE