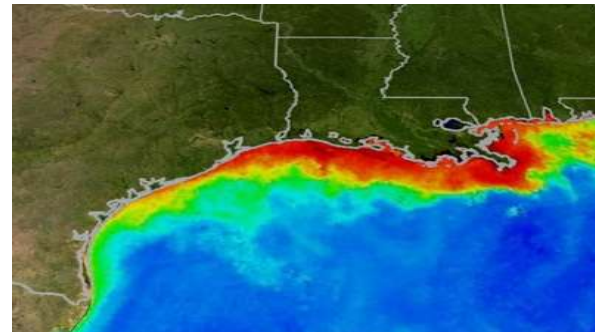
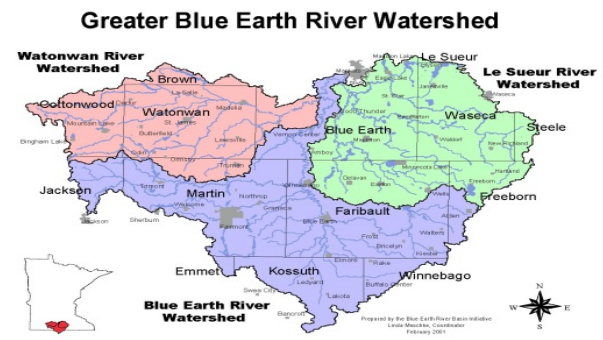
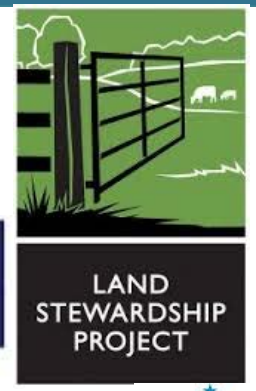




# Green Lands Blue Waters





UNIVERSITY OF MINNESOTA  
Driven to Discover<sup>SM</sup>



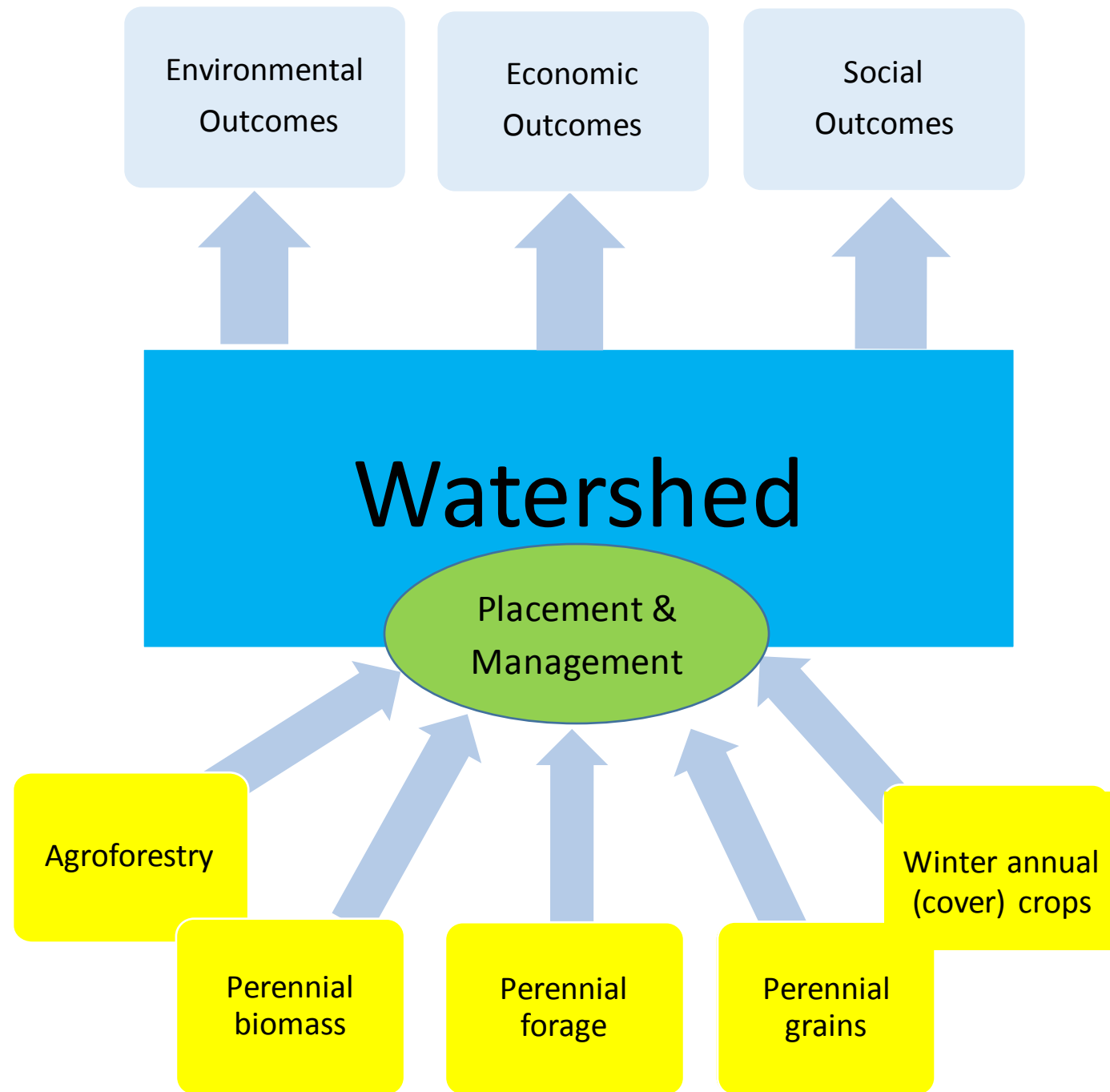
# Environmental Benefits of Continuous Living Cover Farming

- Cleaner surface and ground water
- Improved soil health
- GHG mitigation and climate adaptation
- More habitat for wildlife and pollinators

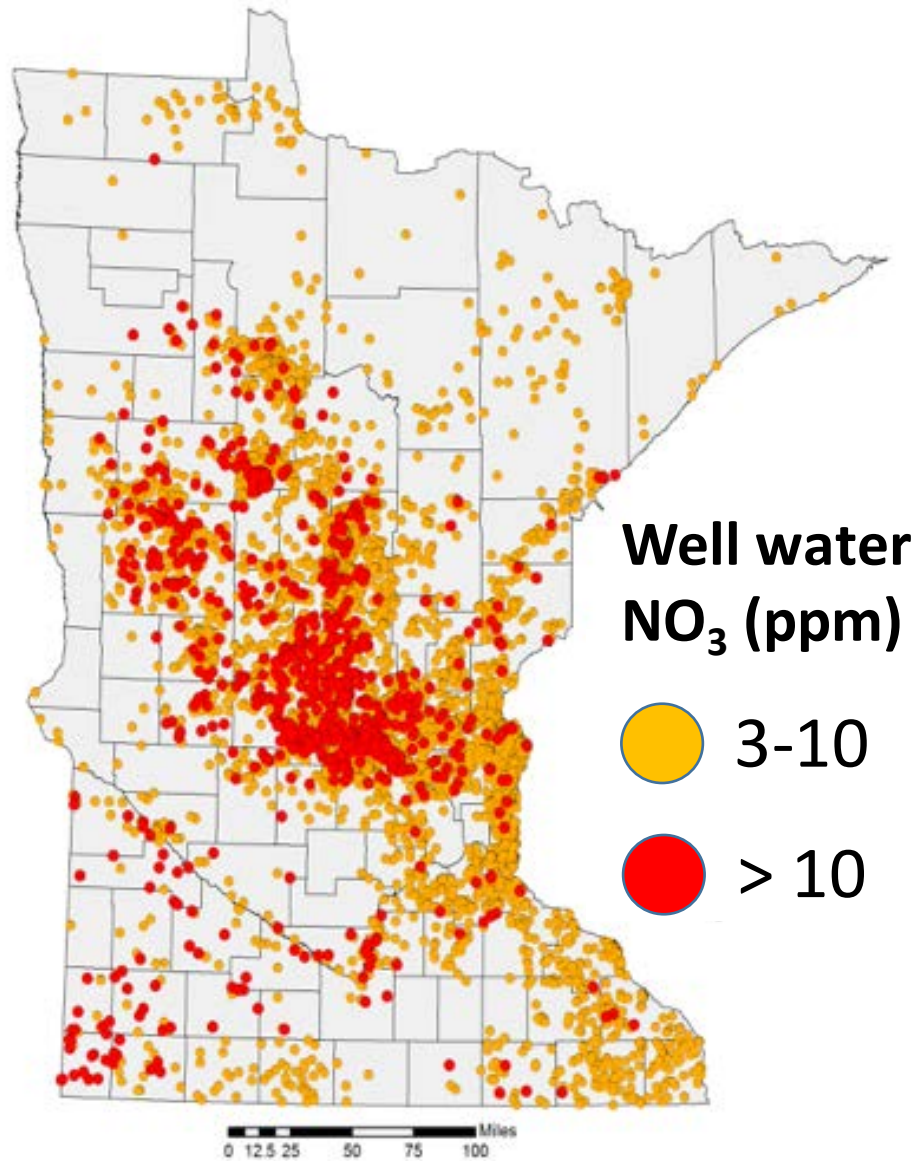


## Economic Drivers for Continuous Living Cover Farming





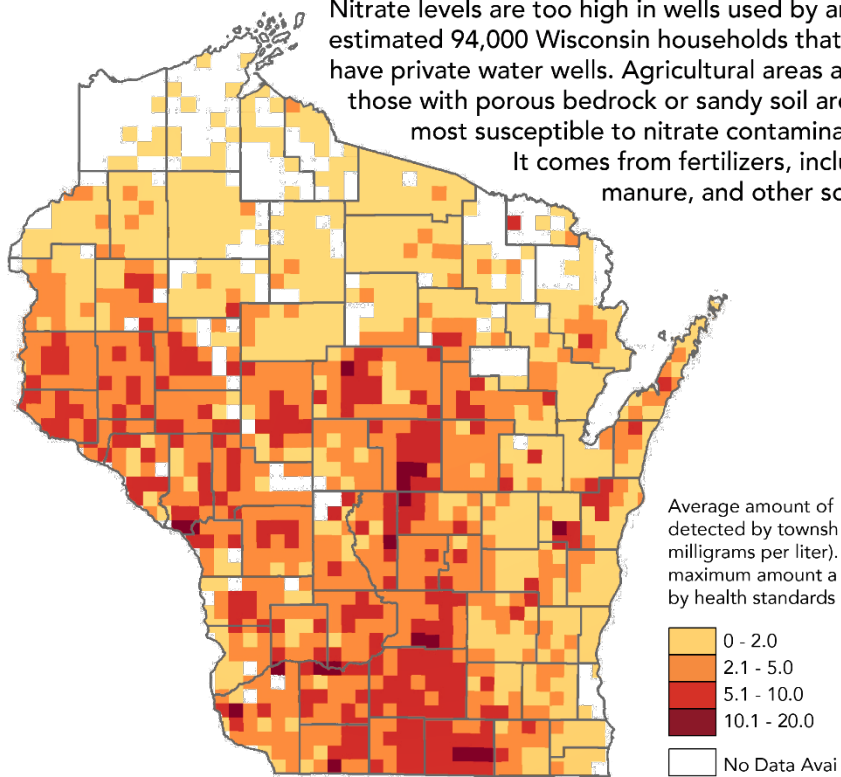
# Nitrate Leaching and Groundwater



# A regional problem

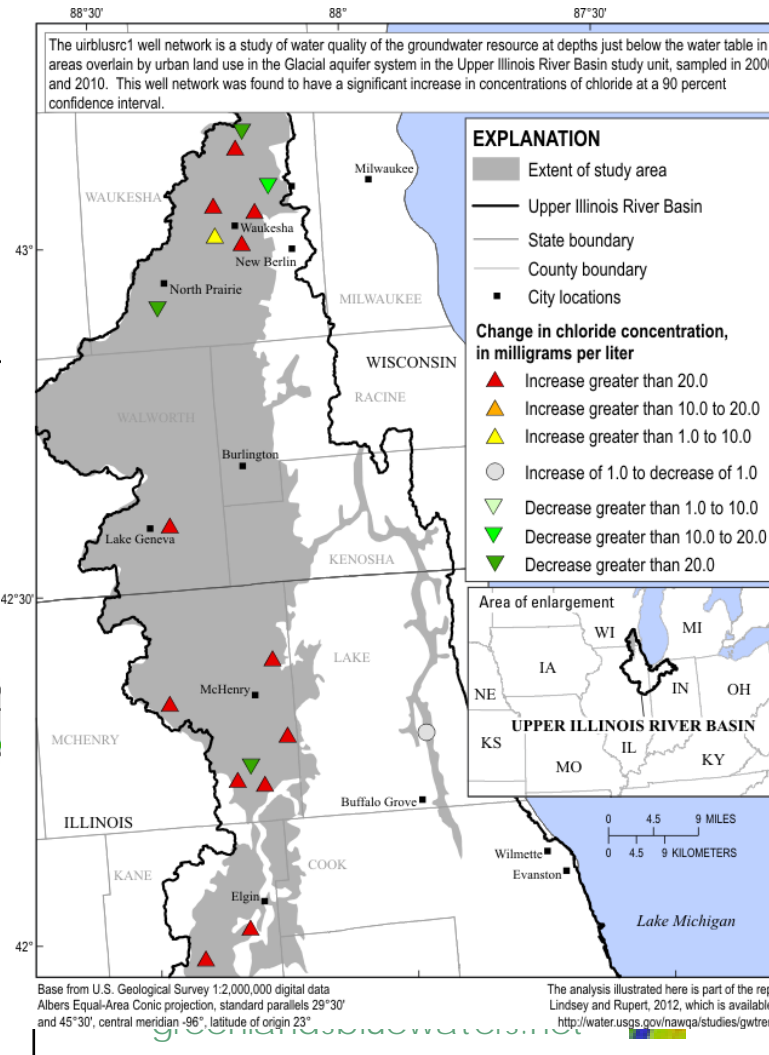
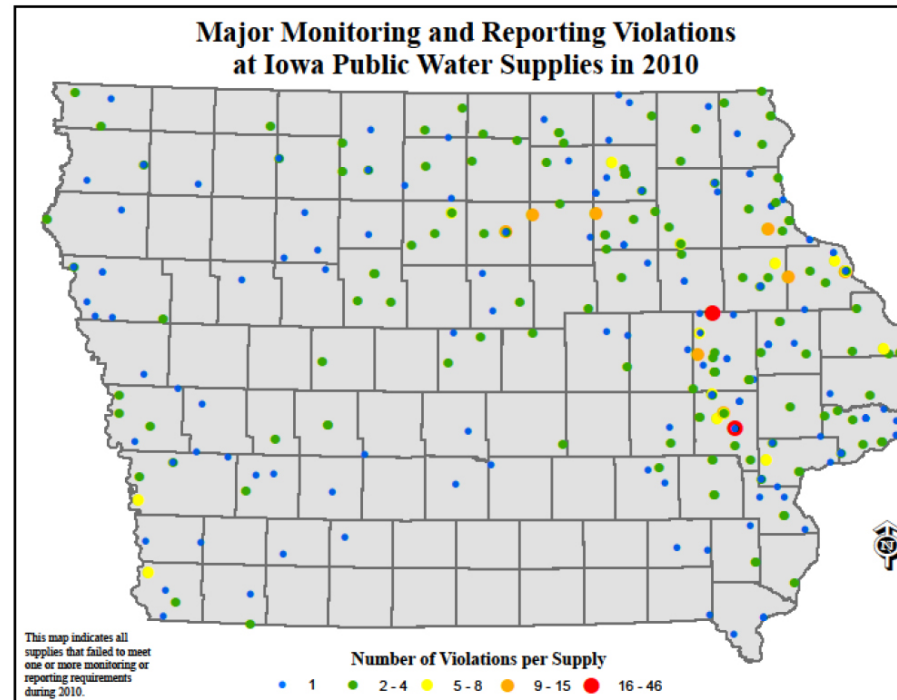
## Nitrate in drinking water around Wisconsin

Nitrate levels are too high in wells used by an estimated 94,000 Wisconsin households that have private water wells. Agricultural areas and those with porous bedrock or sandy soil are most susceptible to nitrate contamination. It comes from fertilizers, including manure, and other sources.



CREDIT: Katie Kowalsky/Wisconsin Center for Investigative Journalism

SOURCE: Well Water Quality Viewer, University of Wisconsin-Stevens Point's Center for Watershed Science and Education Drinking Water Quality in Rural Wisconsin, Journal of Environmental Health, 2013.



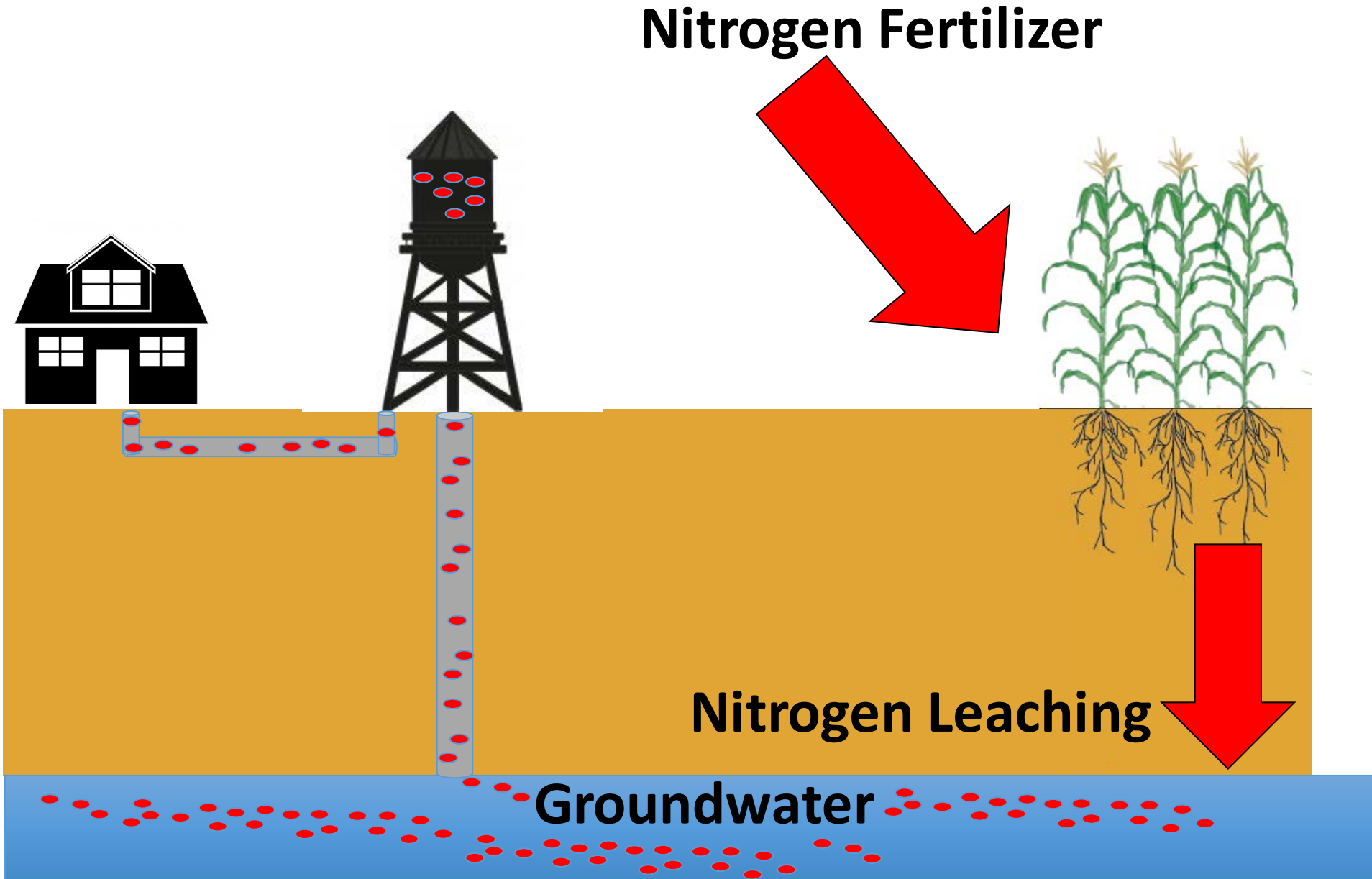
# State collaborations for source water protection



## Kernza?



# Nitrogen Fertilizer in Groundwater

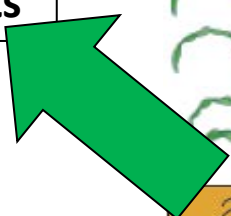




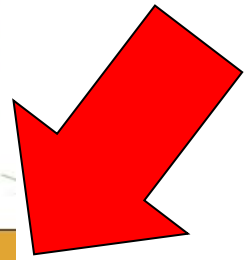
# Annual row crops



Commodities:  
grain, potatoes,  
others products

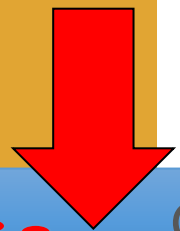


Nitrogen fertilizer



Plant uptake

Root and soil N cycling



Nitrogen Leaching

Groundwater

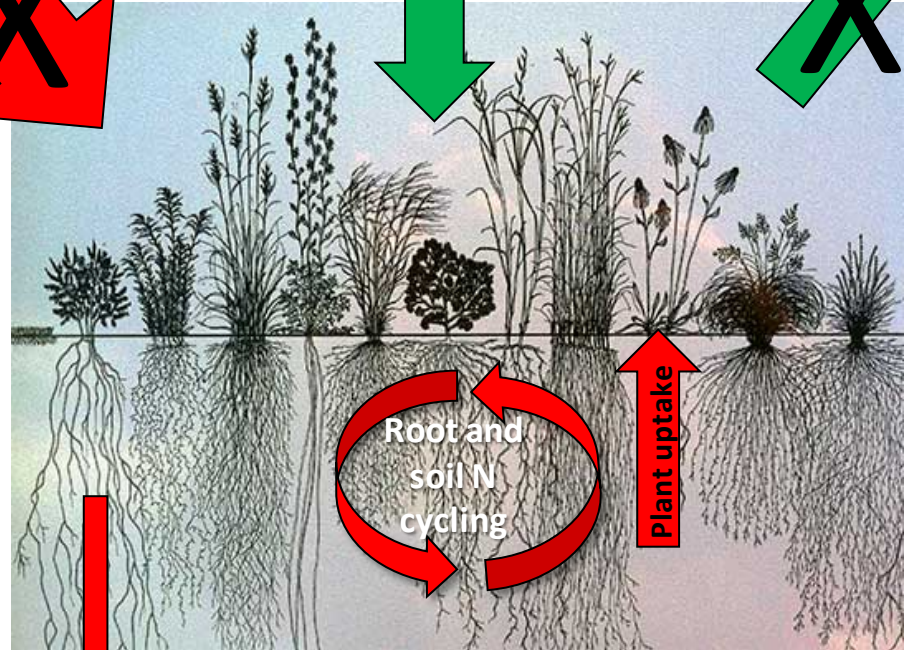
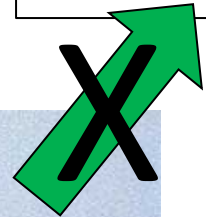


# Conservation Reserve Program / Easements

Government Payments



Commodities:



Root and soil N cycling

Plant uptake



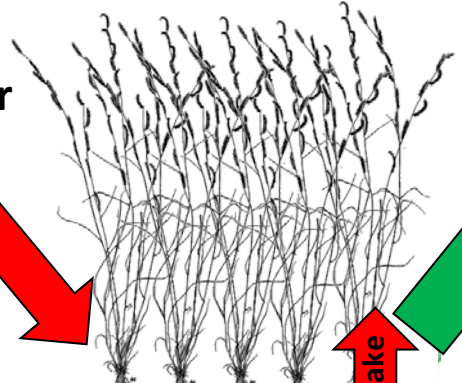
# Annual row crops

# Perennial IWG / Kernza

Commodities:  
Grain, etc

Commodities:  
Grain &  
High Quality Forage

Nitrogen fertilizer



Plant uptake

Root and soil N cycling

Plant uptake

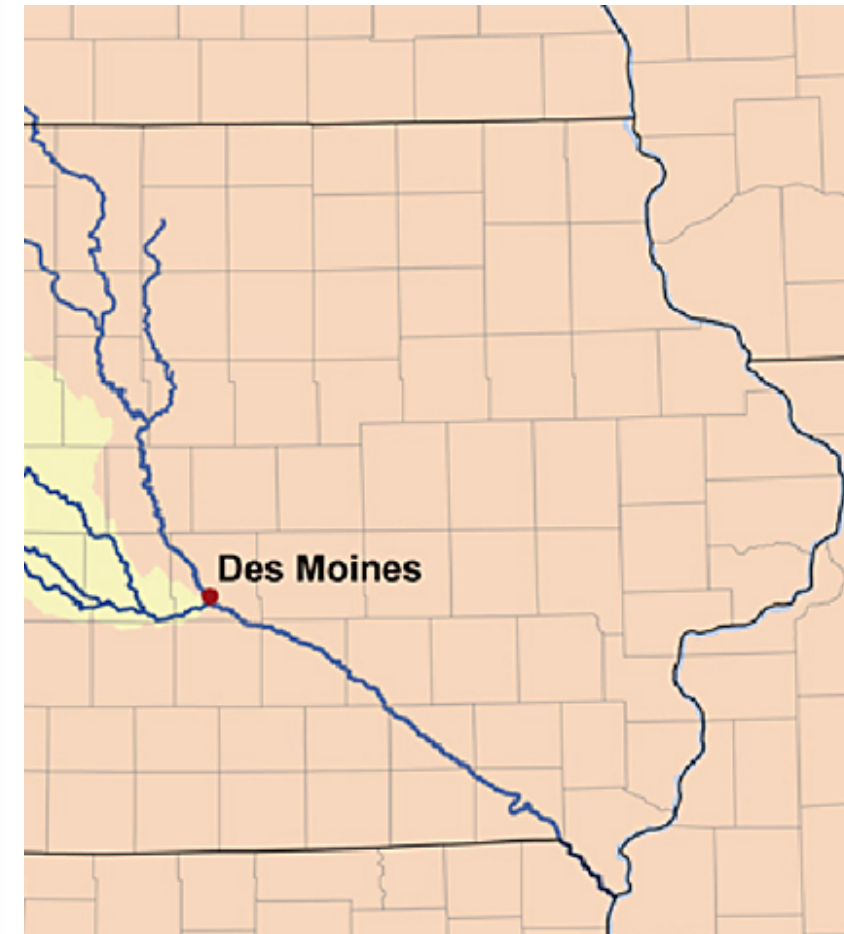
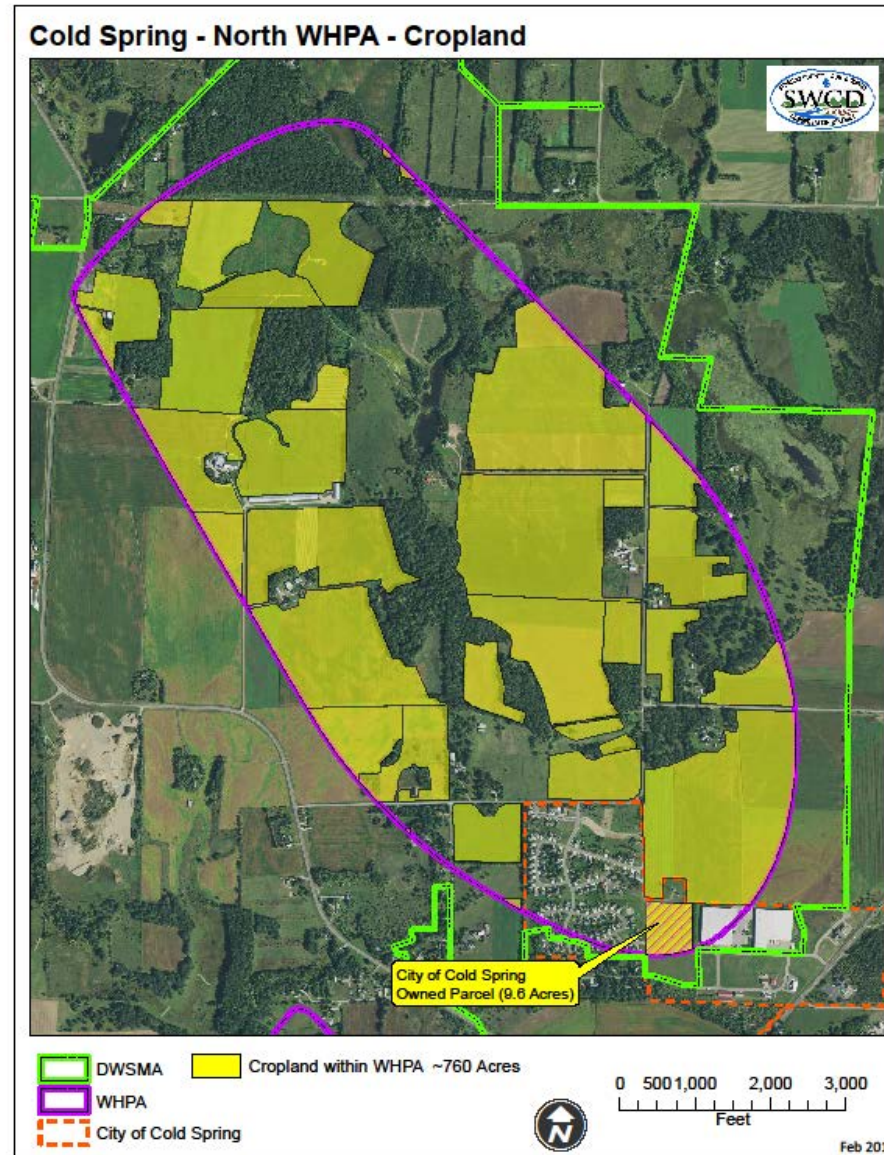
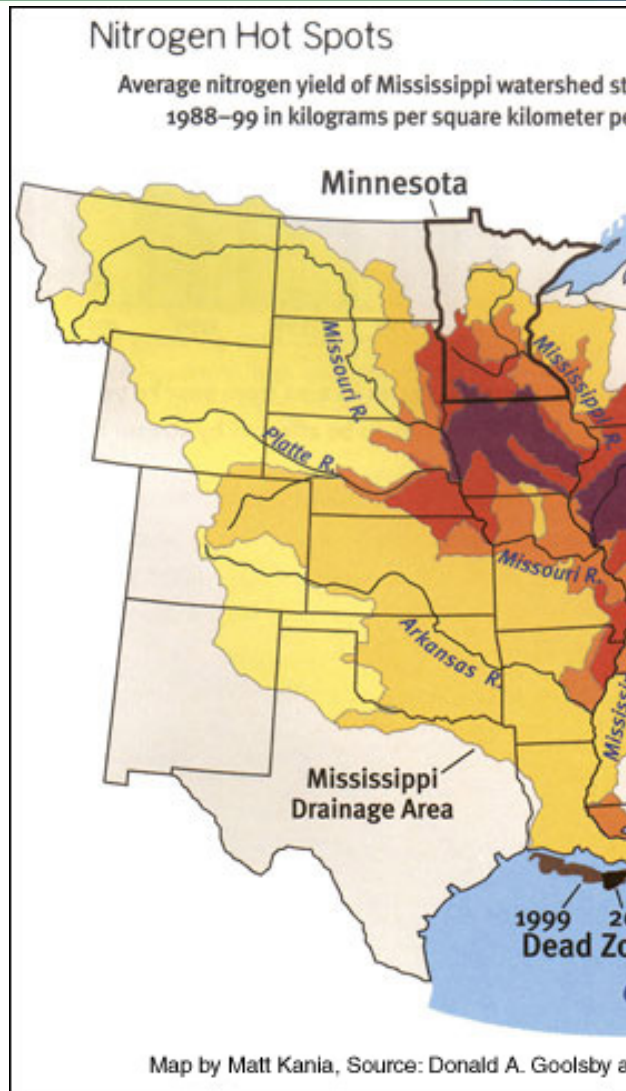
Root and soil N cycling

Nitrogen Leaching

Groundwater



# Agriculture – Water Quality Narrative



# How do we get there?



## Market and policy drivers for

- Reduce risk for Kernza farmers
- Who will buy the grain?
- Identify local markets for IWG forage



# Green Lands Blue Waters



Next GLBW Conference  
November 28-29, 2017



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