

Food • **Land** • & **Water**

Toward a Sustainable Wisconsin



Groundwater Quality

The Nitrate and Pathogen Challenge

Ed Odgers, DATCP retired
October 2017



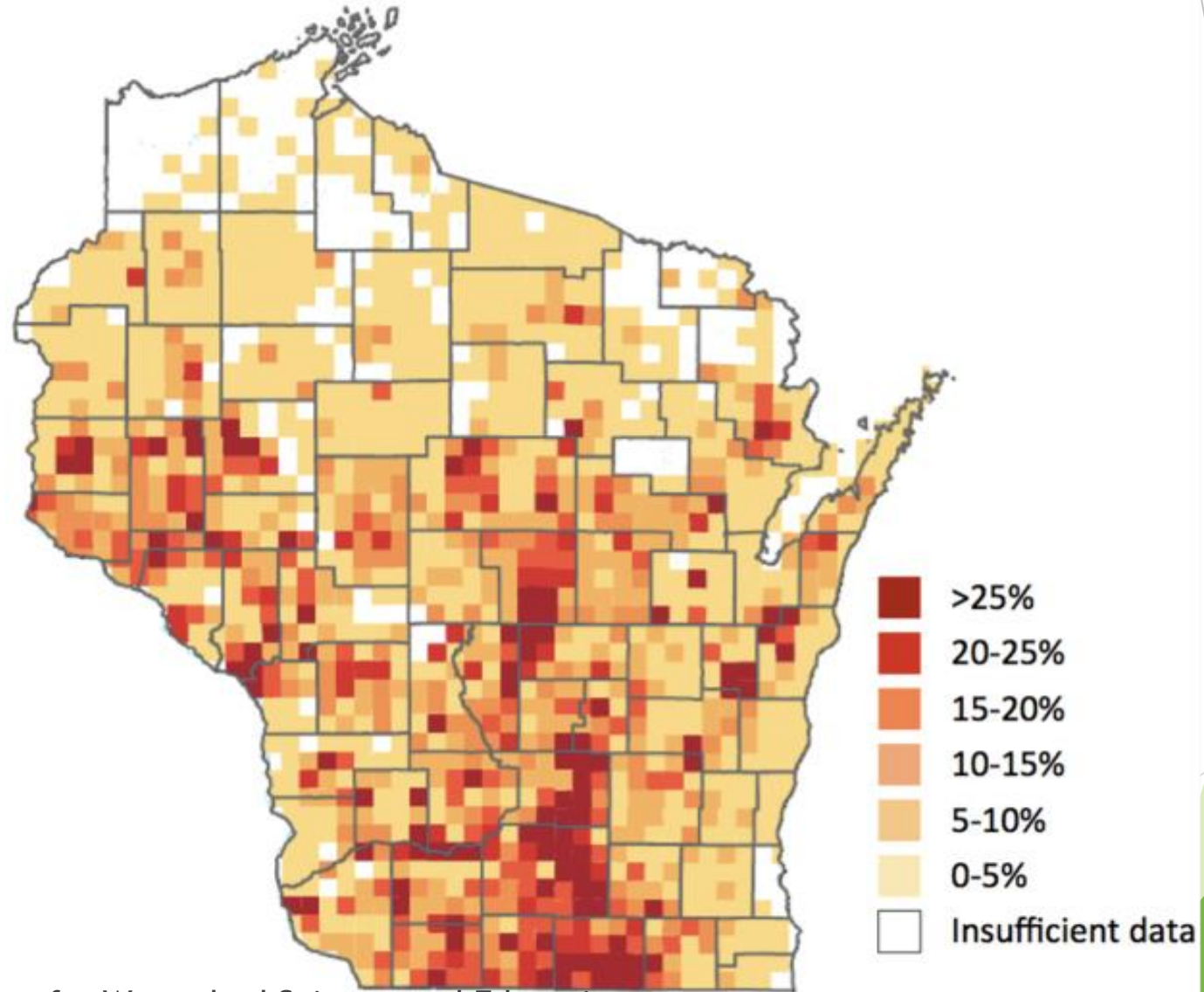
Image: U.S. EPA

The Nitrate Challenge



Image: Lynn Betts, USDA-NRCS

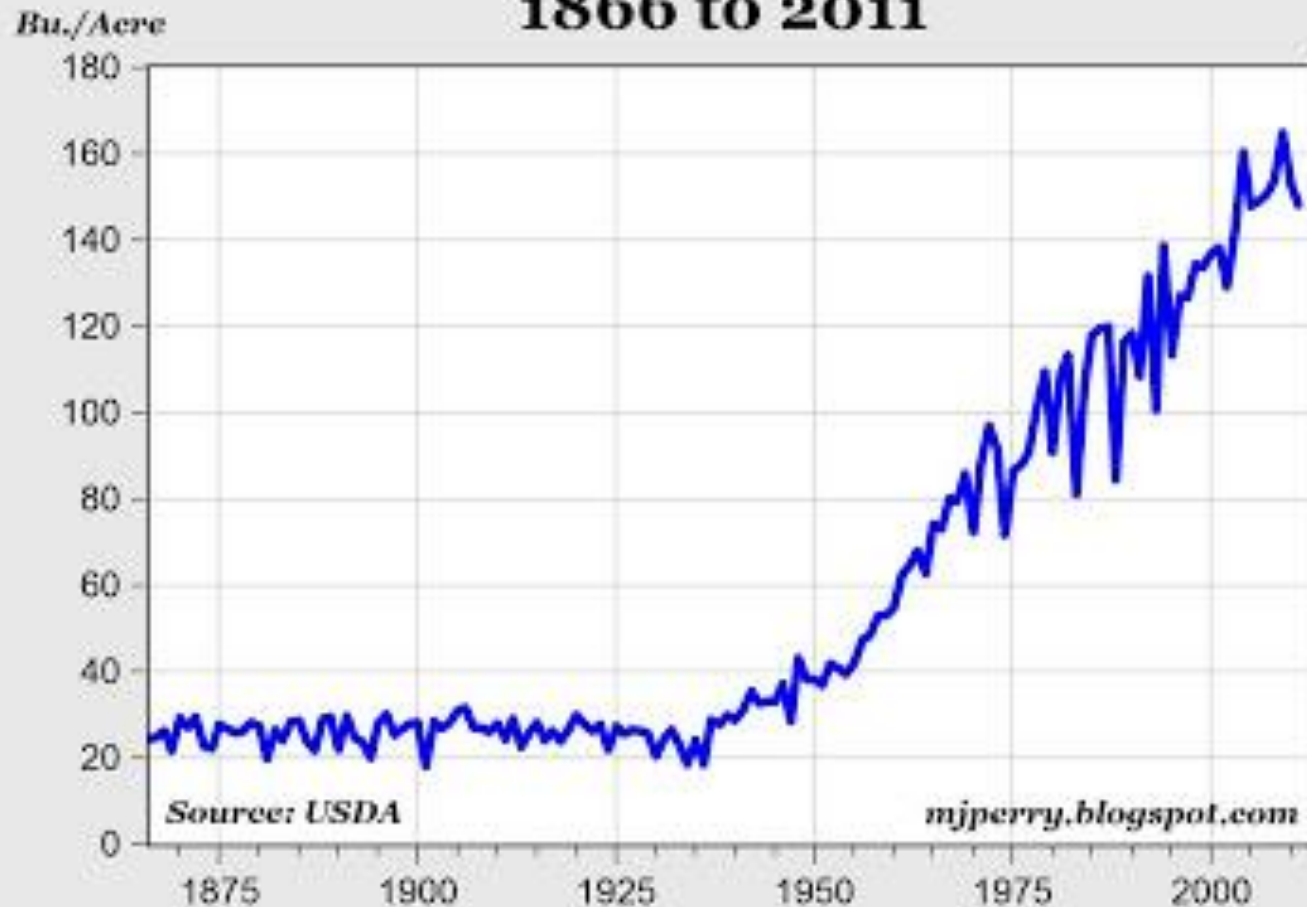
Where is Nitrate Contamination Occurring?



Map: UW-Stevens Point, Center for Watershed Science and Education

Higher Production, But More Pollution

**U.S. Corn Production: Yield per Acre
1866 to 2011**



Wisconsin Nitrogen Applications

Tons of Nitrogen Applied
on Wisconsin Farms (2004-14)

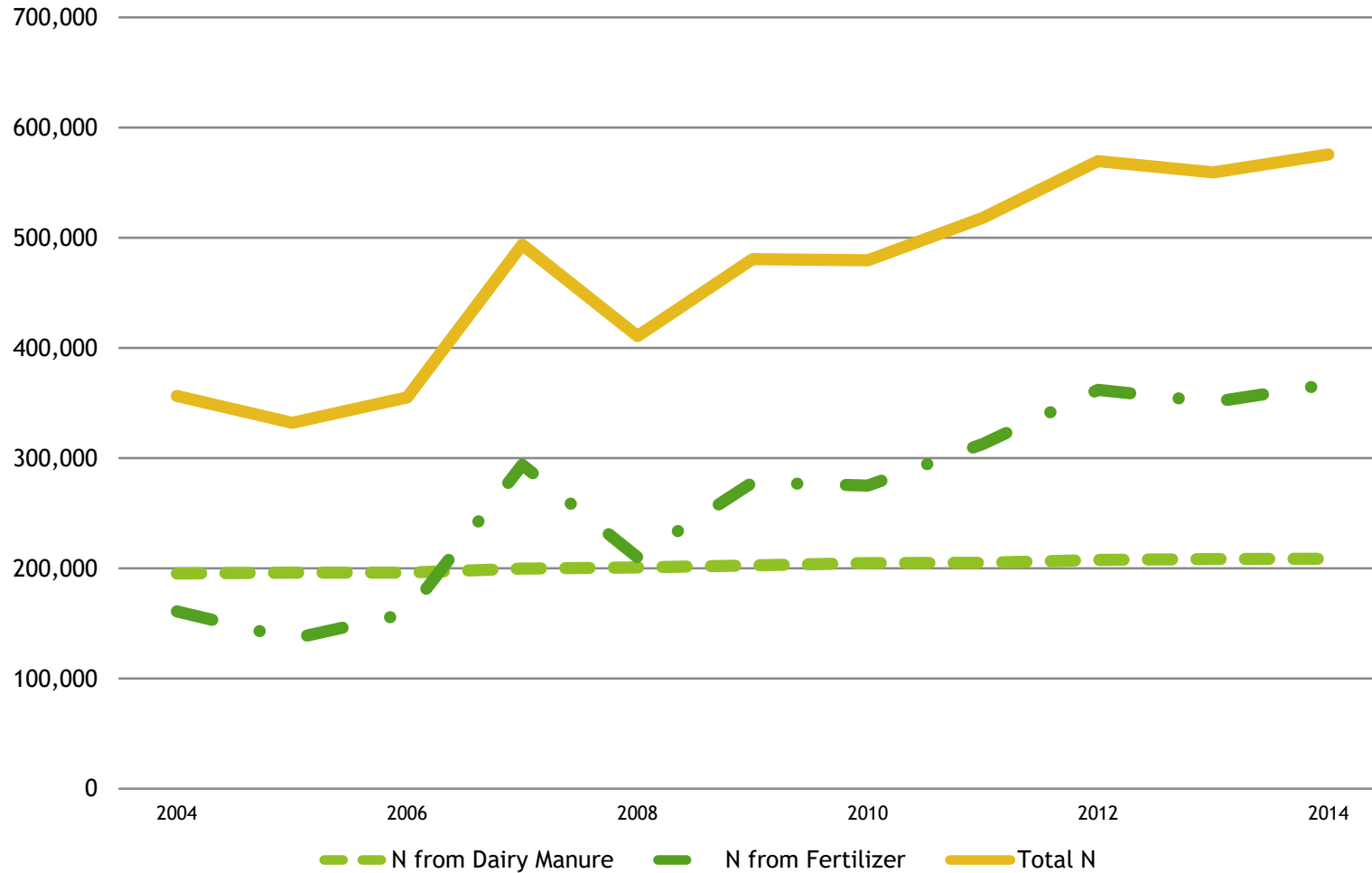


Image: Fertilizer N trends per DATCP. Manure N trends estimated per ASABE.

The Pathogen Challenge

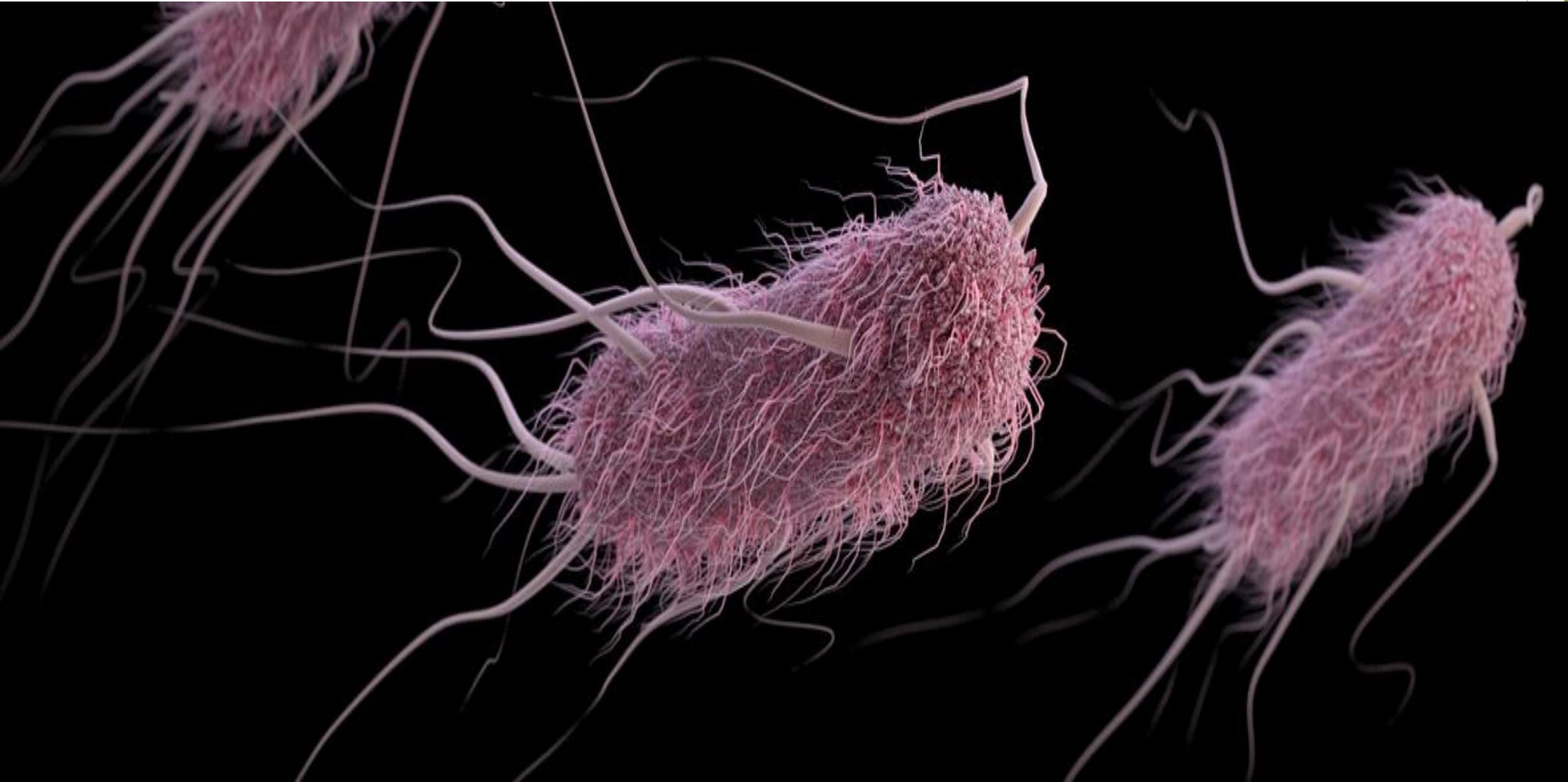
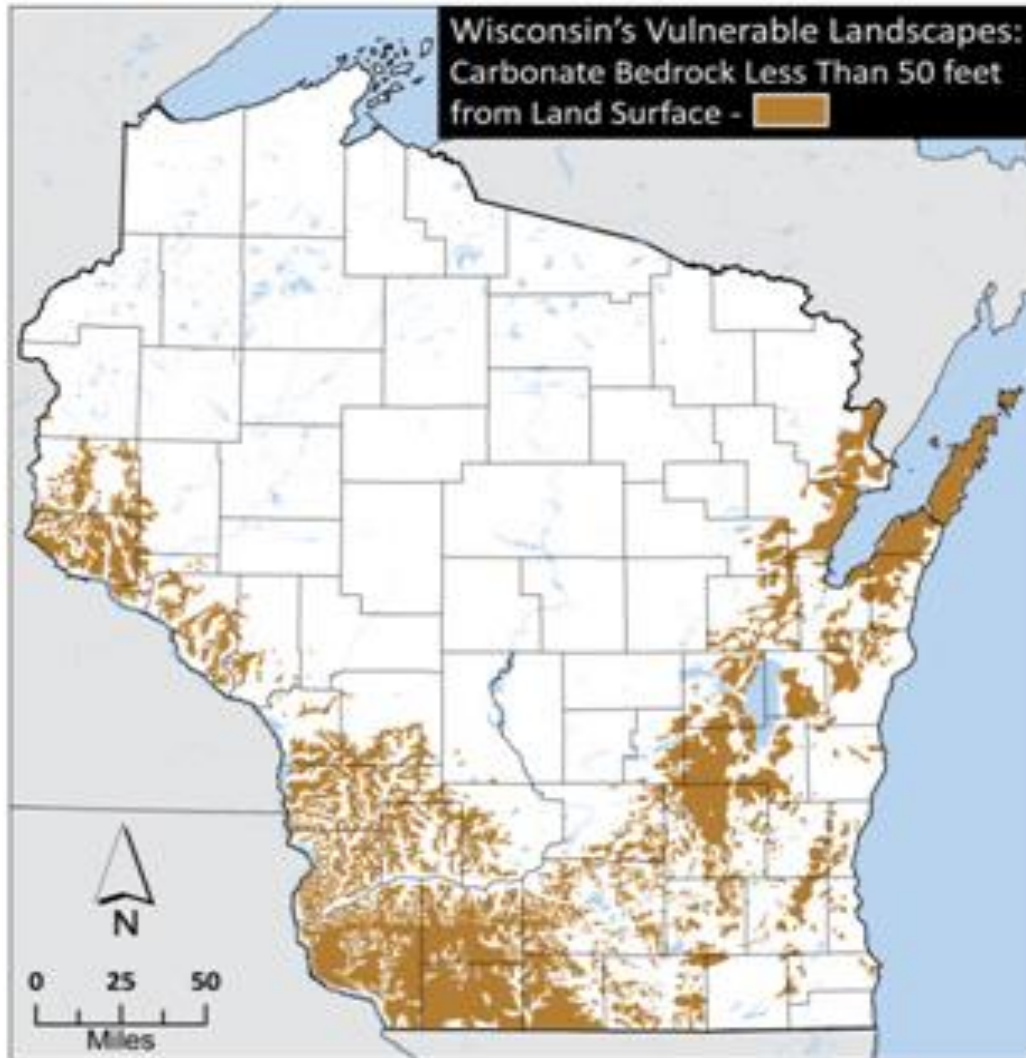


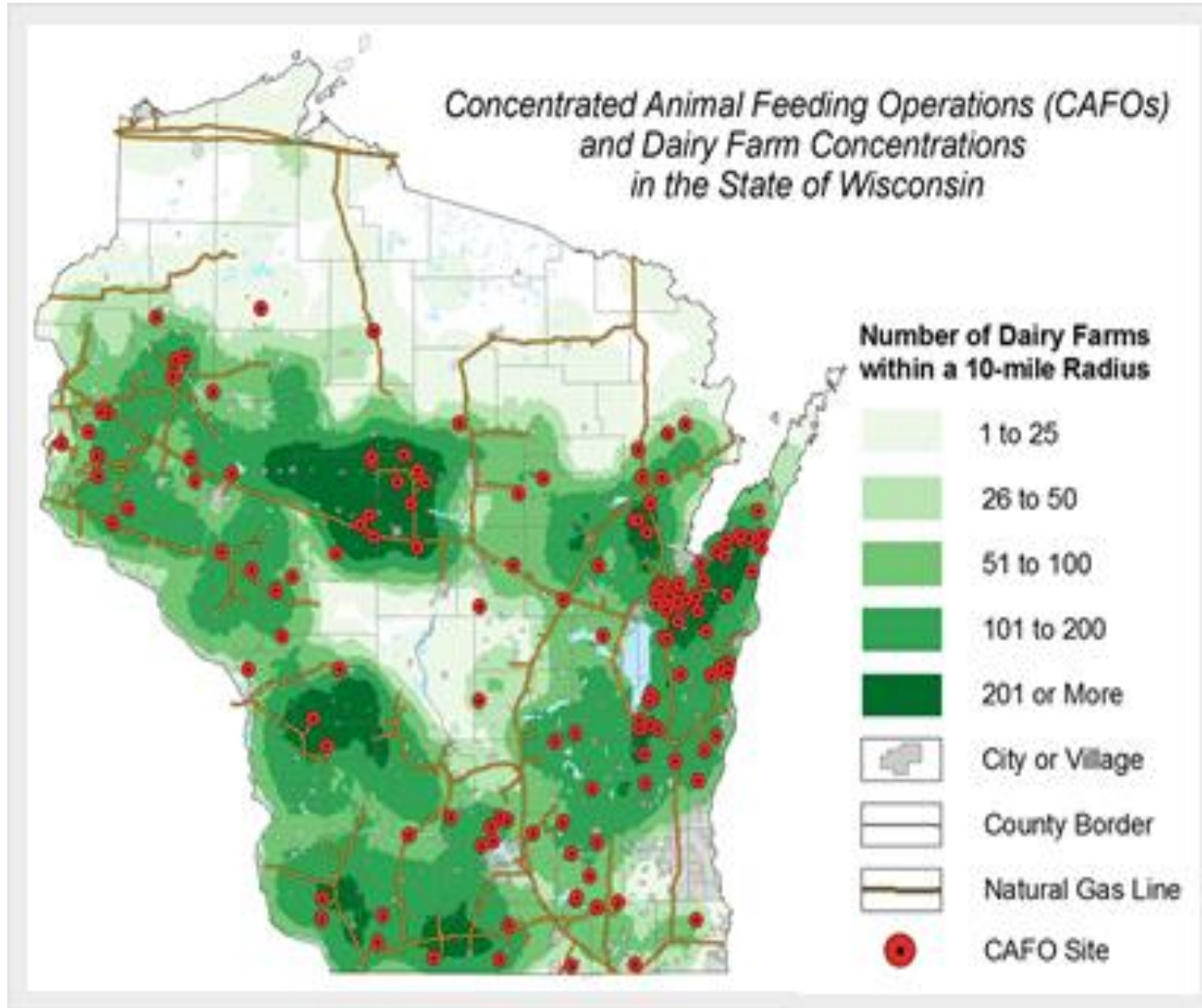
Image: E coli. U.S. Centers for Disease Control

Are Some Areas More Susceptible?



Map: Shallow Karst Bedrock Areas. Wisconsin Geological and Natural History Survey.

Livestock Concentrations



Map: UW-Extension (2009)

Nutrient Management and Groundwater



Map: UW-Extension (2009)

Next Up: Notable Recent Efforts

- ▶ Don Niles, farmer
Peninsula Pride Farmer-Led Project
- ▶ Davina Bonness, Kewaunee County
Kewaunee Groundwater Protection Ordinance

Groundwater Quality Panelists

- ▶ Ed Odgers (facilitator) - DATCP retired
- ▶ Chuck Wagner - Well owner, Kewaunee LCC
- ▶ Kevin Masarik - Groundwater Education Specialist, UW Stevens Point
- ▶ Mark Borchardt - Microbiologist, USDA-ARS
- ▶ John Pagel - Farmer, Kewaunee County LCC Chair
- ▶ Don Bennett - Hartung Brothers (Wisconsin farming business)