The Role of Pioneer Farm in the Wisconsin Phosphorus Index

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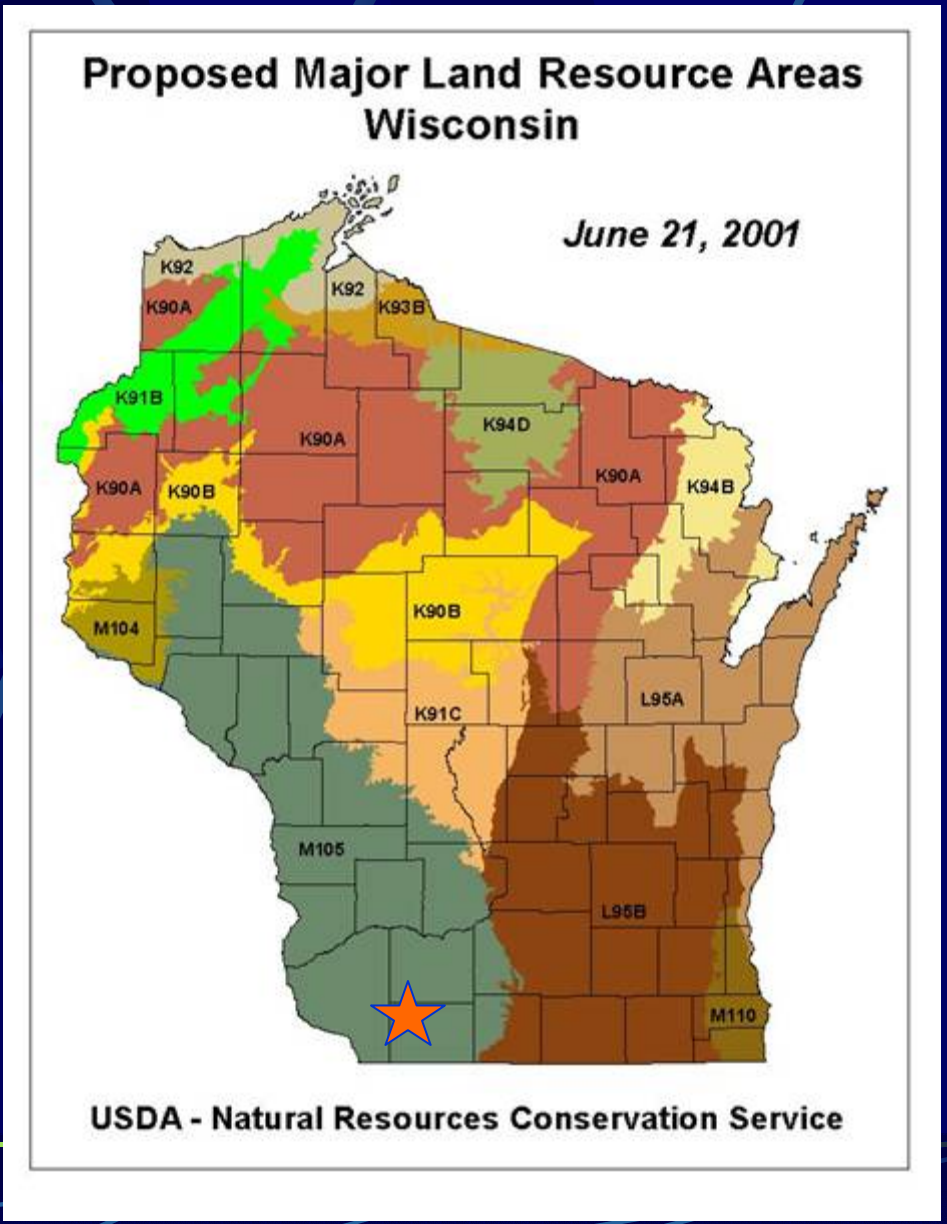
Location

5 miles south of Platteville, WI. Located in MLRA 105 – Northern Mississippi Loess Hills

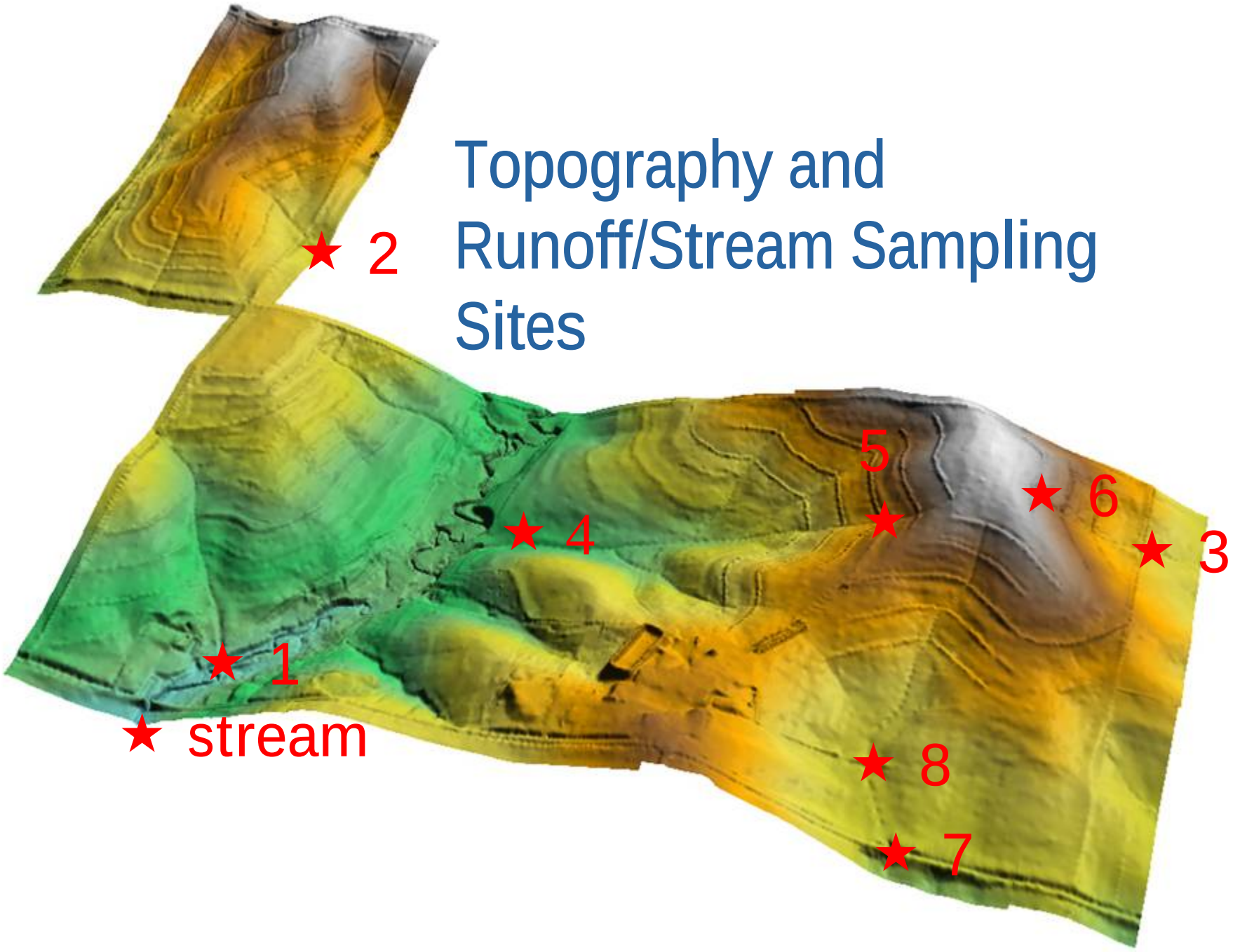


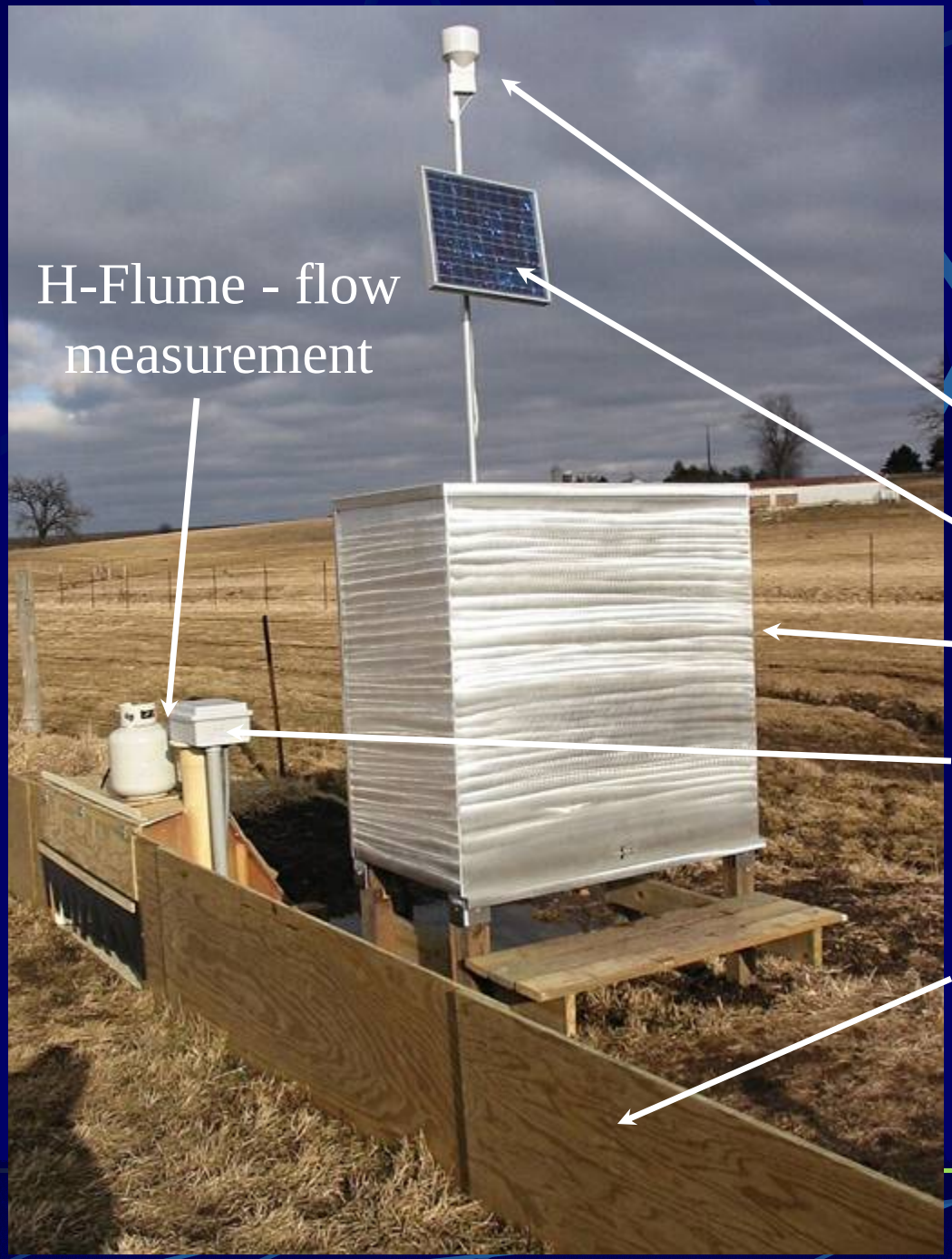
Pioneer Farm Research Priorities

1. Baseline measurements:
   environmental & farm management
2. Water quality:
   soil conservation practices, erosion & sediment delivery
3. Nutrient management:
   focus on N & P
4. Manure Management
   composting, liquid/solid separation
5. Air quality
   odor monitoring

** Support of science-based public policies **

Topography and Runoff/Stream Sampling Sites





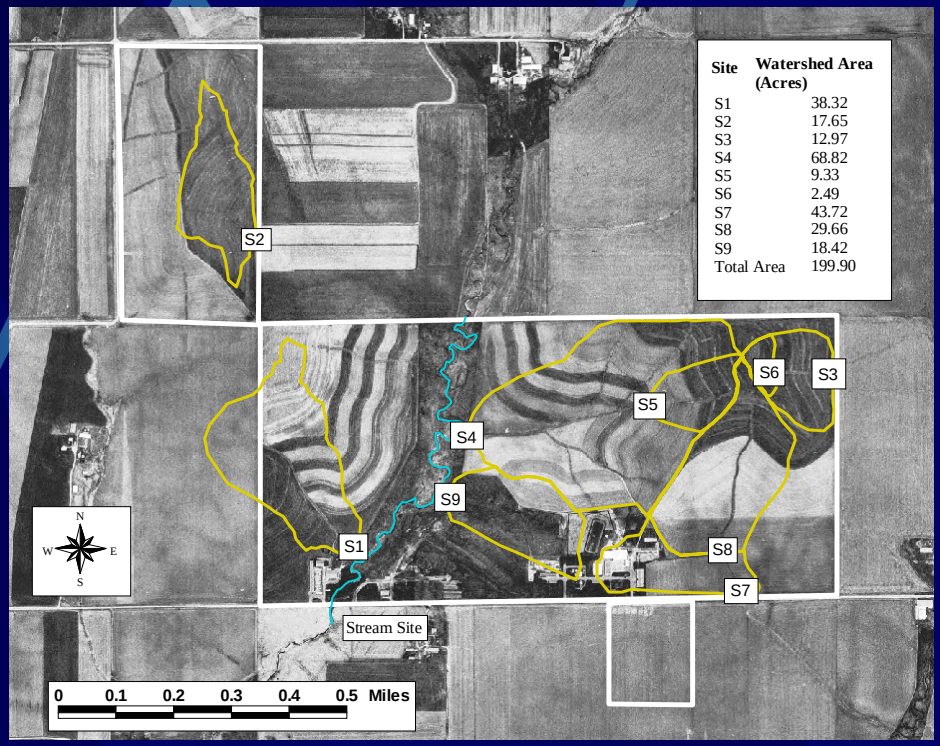
Typical Pioneer Farm Runoff Monitoring Station

- Raingage
- Solar Panel
- Gaging station
- Shaft-encoder stage sensor
- Plywood wingwall

Sampling Equipment

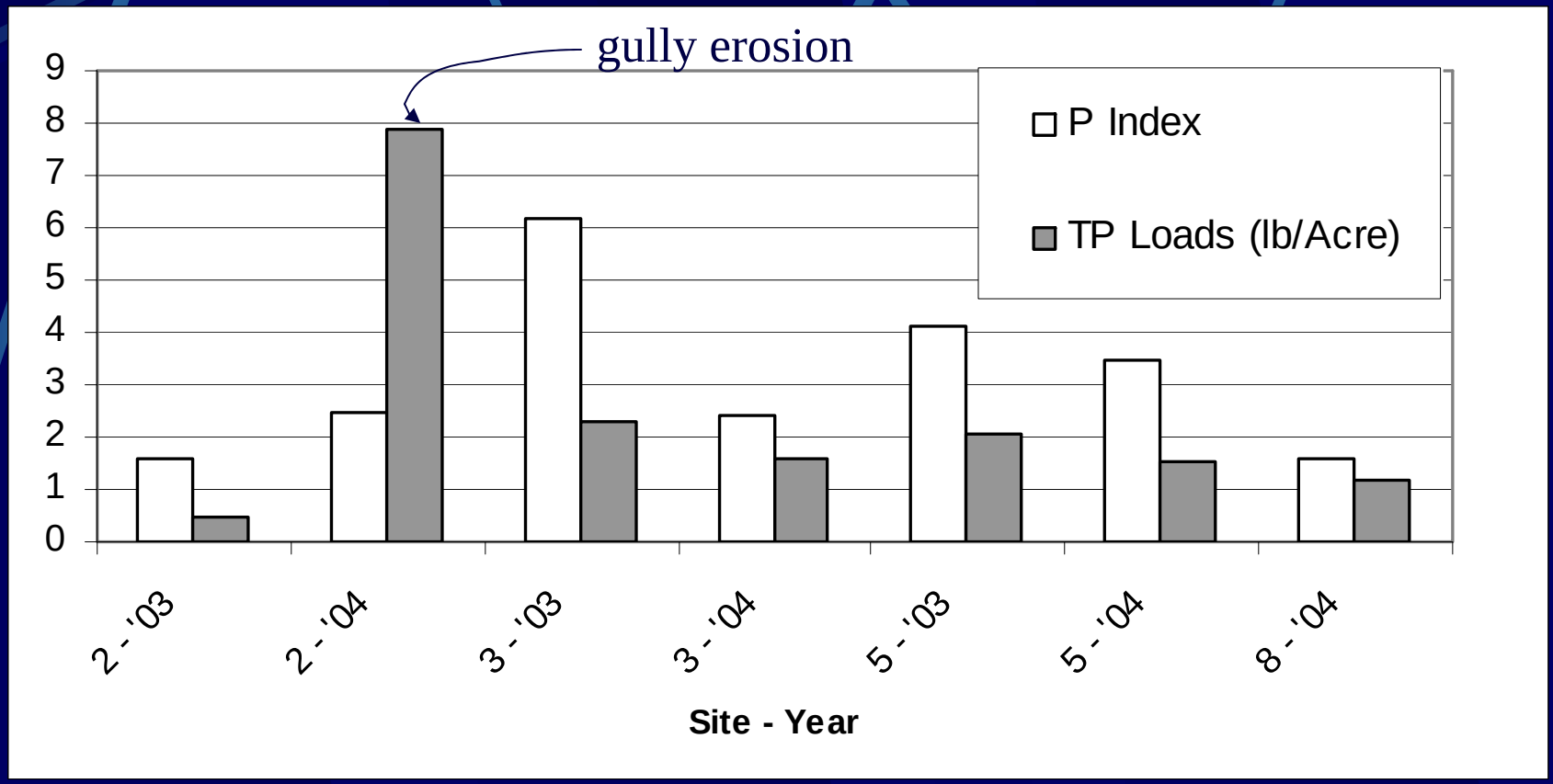
Calibrating the P Index: Why use Pioneer Farm?

- Existing baseline data
- PI has been determined on all fields
- 4 Single-crop subwatersheds
- Management flexibility

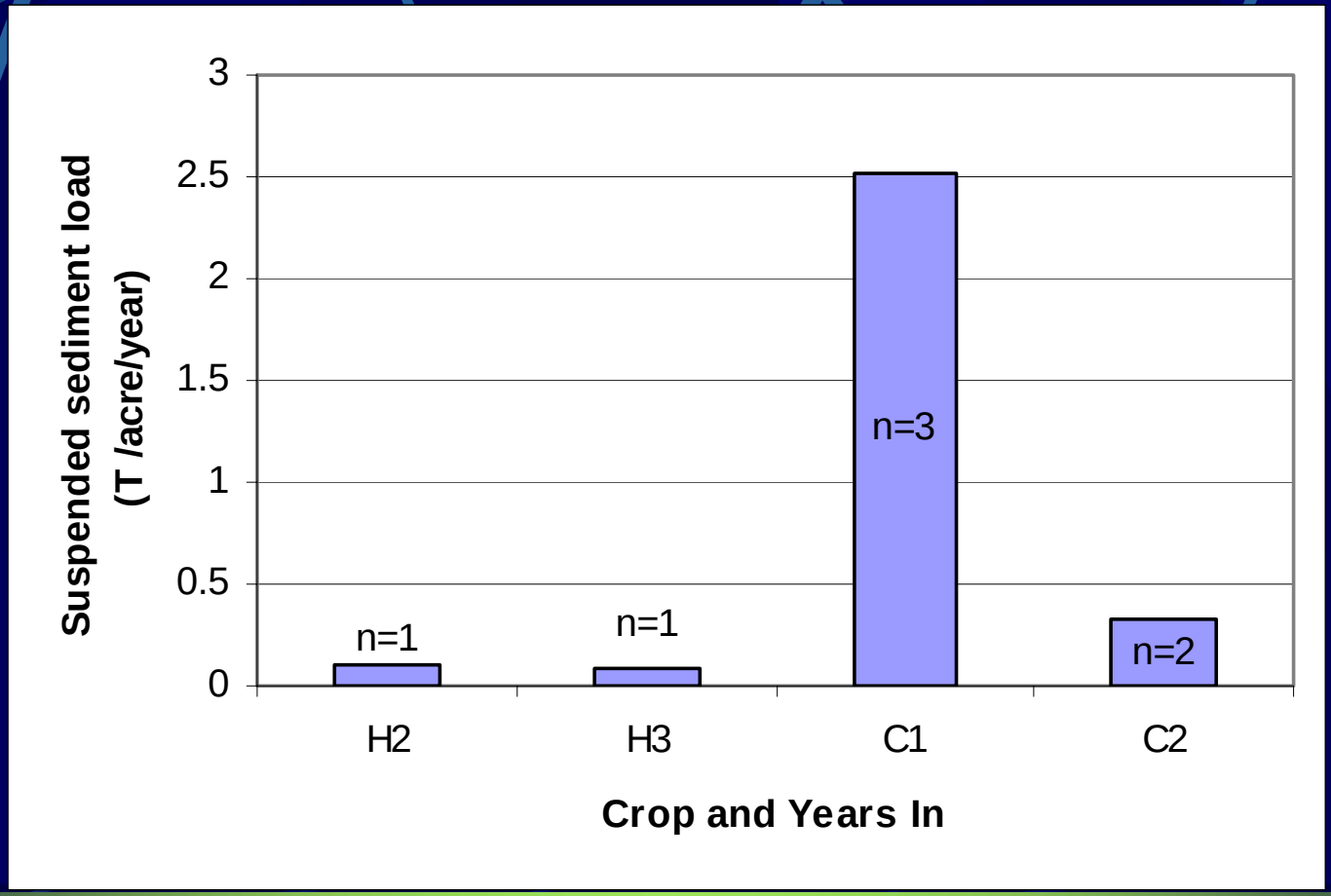


Results of PI and Annual Loads

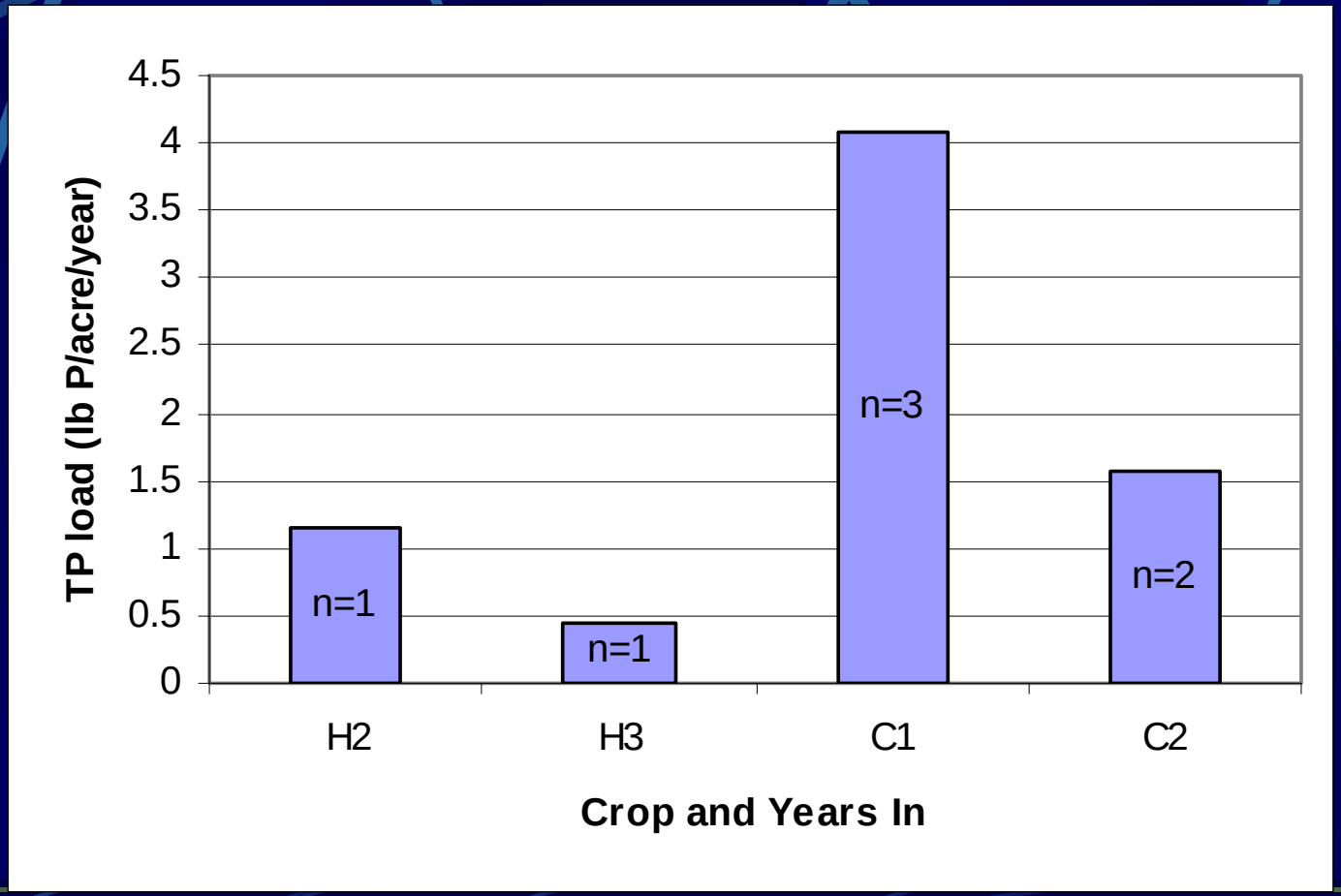
**** Provisional Data ****



Effect of Cropping System on Annual Sediment Load

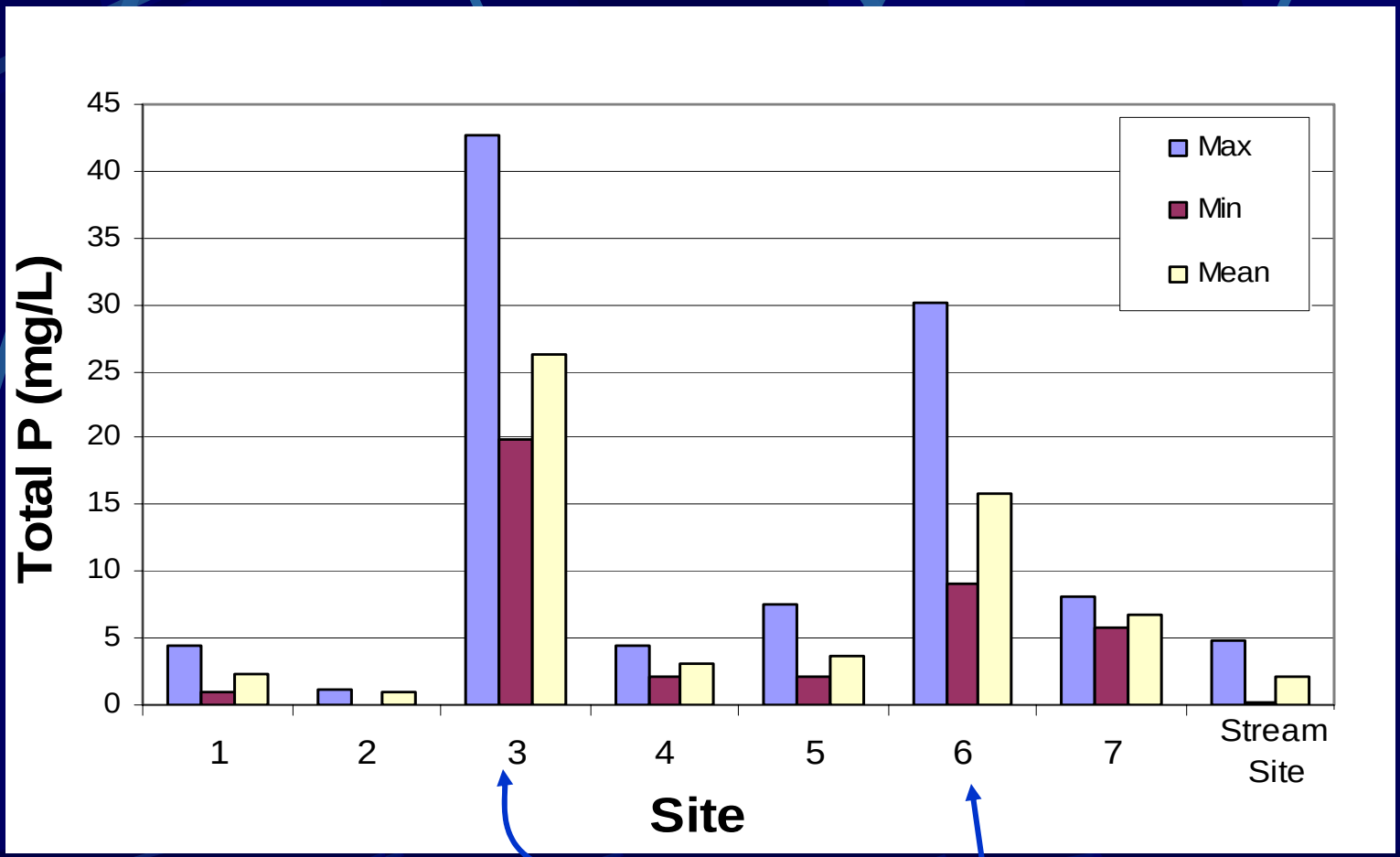


Effect of Cropping System on Total P Load



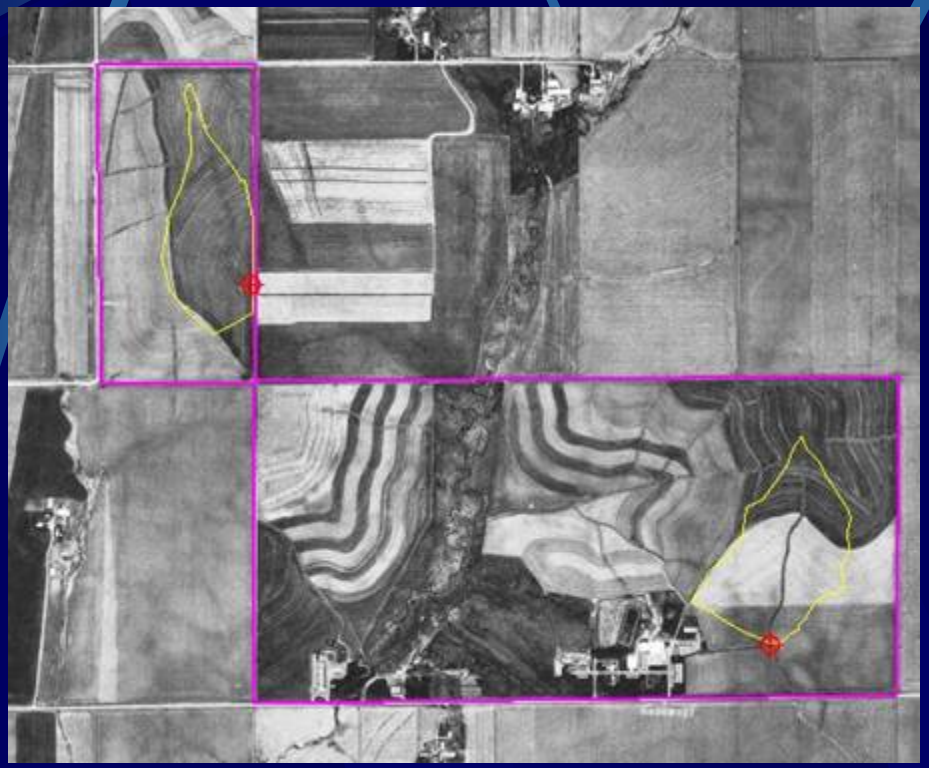
Winter Manure Applications

2004 Winter Runoff –3 events



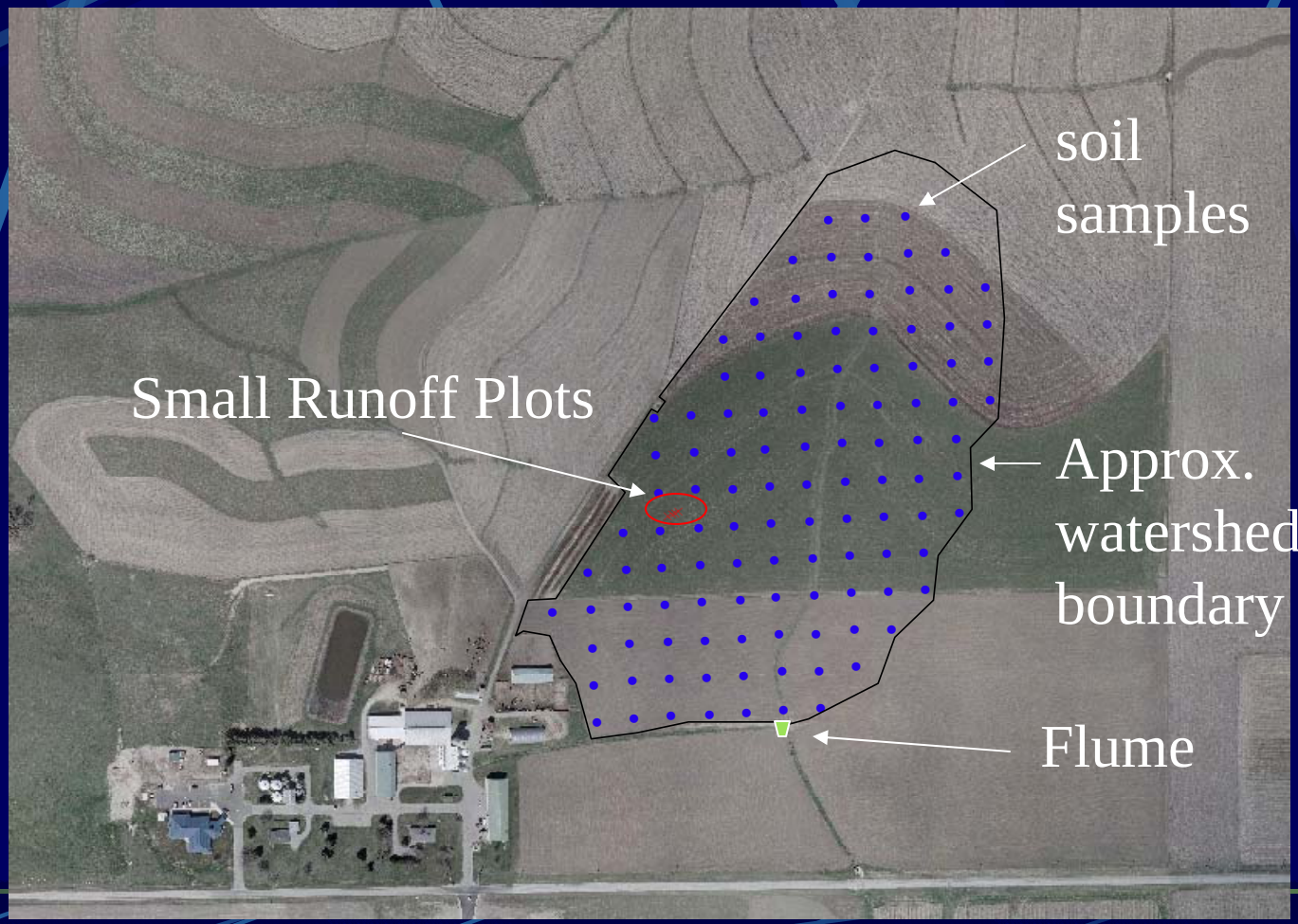
Ongoing Research: Testing the relationship between STP and runoff P losses

Small Plot Scale



Watershed Scale

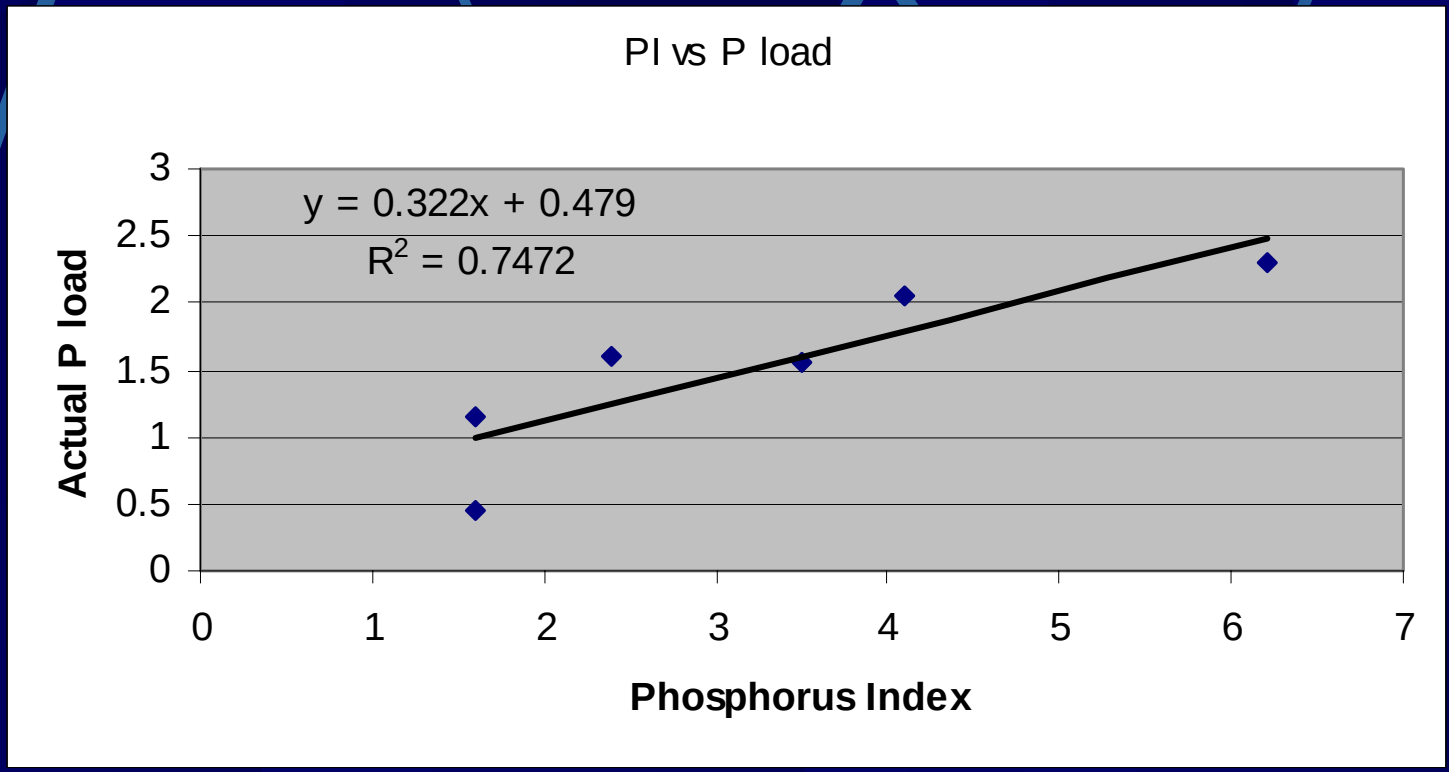
Alfalfa watershed



Does runoff dissolved P change by season?

Season (2004 crop year)	Site 2 (1st year corn)	Site 8 (1st year hay)
	---------- Average dissolved P concentration (mg/L) --------	
Fall (harvest- Nov. 15)	0.50 (n=4)	N/A
Winter (snowmelt and winter precipitation)	0.43 (n=20)	2.35 (n=23)
Spring (April 1 – June 1)	0.46 (n=13)	0.57 (n=6)
Summer (June 1 - harvest)	0.42 (n=8)	1.57 (n=2)

Bottom Line: Is the PI a better predictor of P losses than Soil Test P?



*** Provisional data and Site 2 – 2004 removed

Questions?