

# Three Ways to Control Dissolved Phosphorus from UW Discovery Farms

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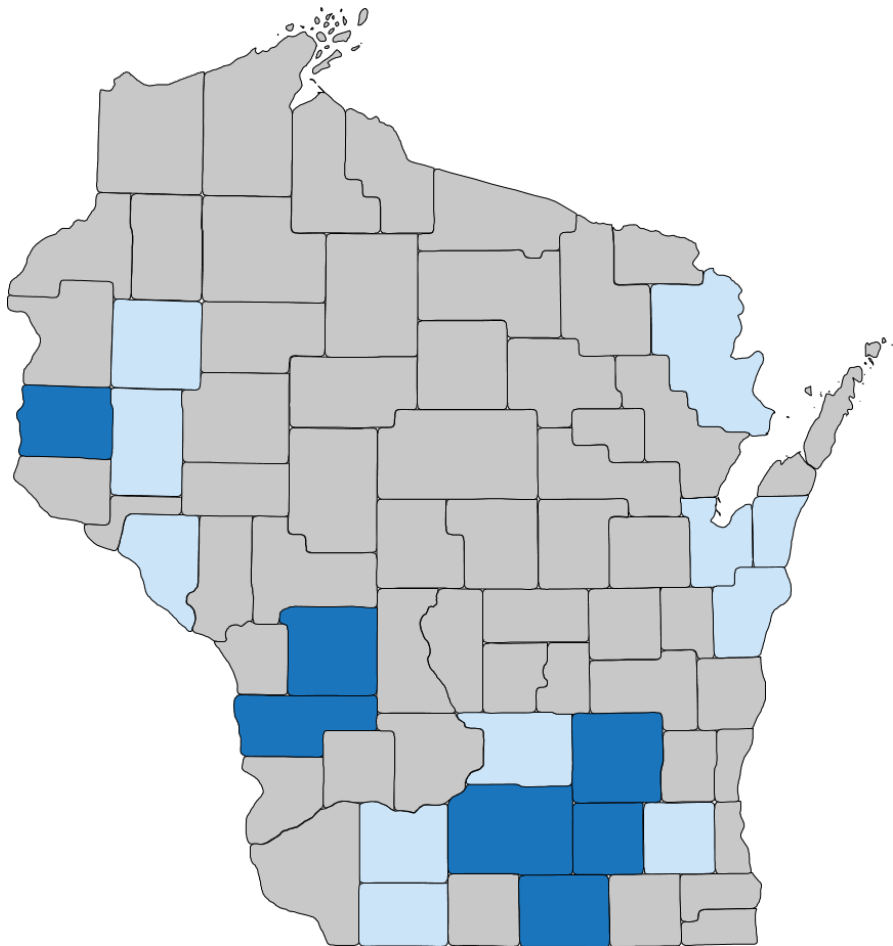
Amber Radatz

January 13, 2016

Wisconsin Crop Management Conference

Madison, WI

# Going on almost 15 years of farmer led on-farm research



15 member Steering Committee

20 farms • 200 site years monitored

10 events per year

3,000 downloads per year

80 presentations

# Discovery Farms has a large dataset with diverse farm systems and locations

85 site years

17 farms • WI & MN

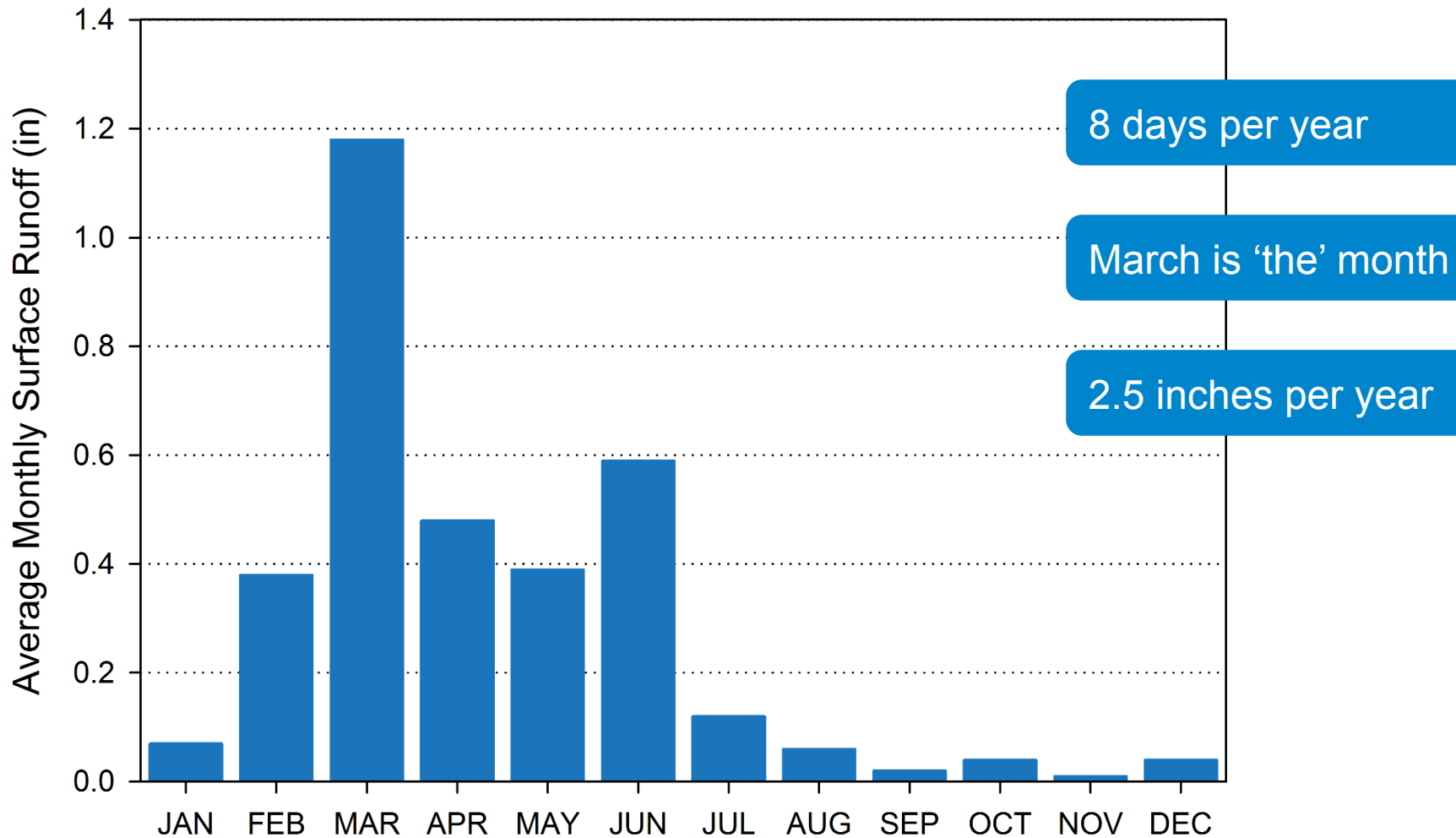
21 sites

All surface runoff

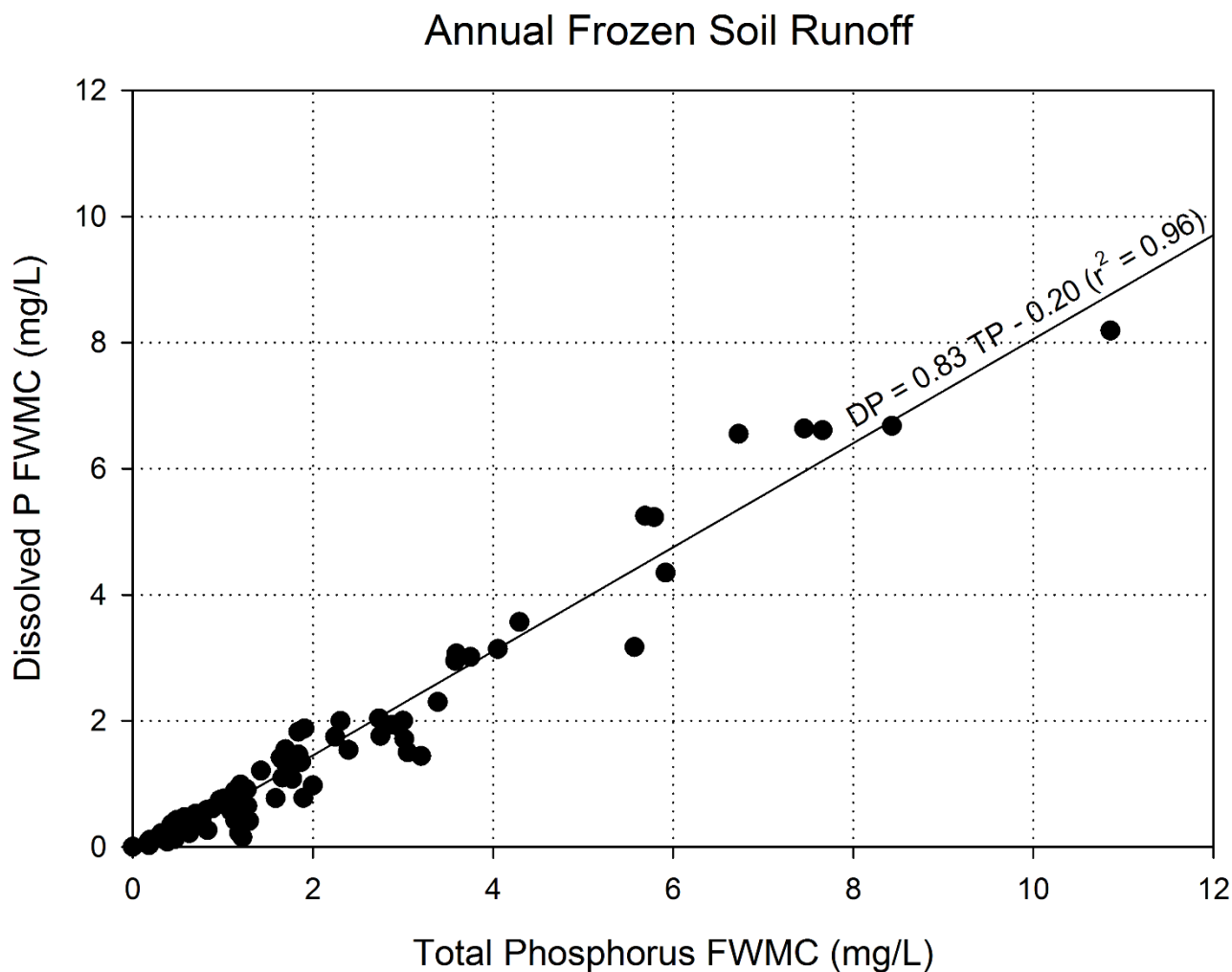


Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

# We know that runoff will happen, you can control what's in it



# 80% of the phosphorus lost with snowmelt is dissolved





Dissolved phosphorus is lost in surface runoff and tile runoff. It impacts surface water resources.

Reduce it by:

Controlling soil loss

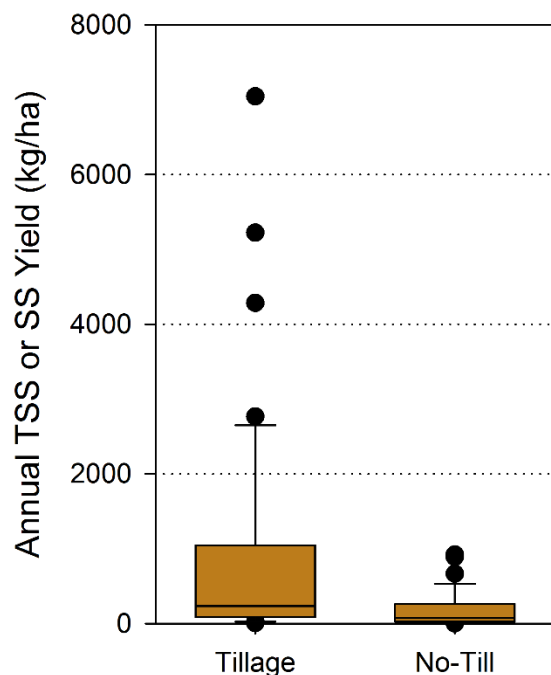
Carefully timing applications

Considering placement

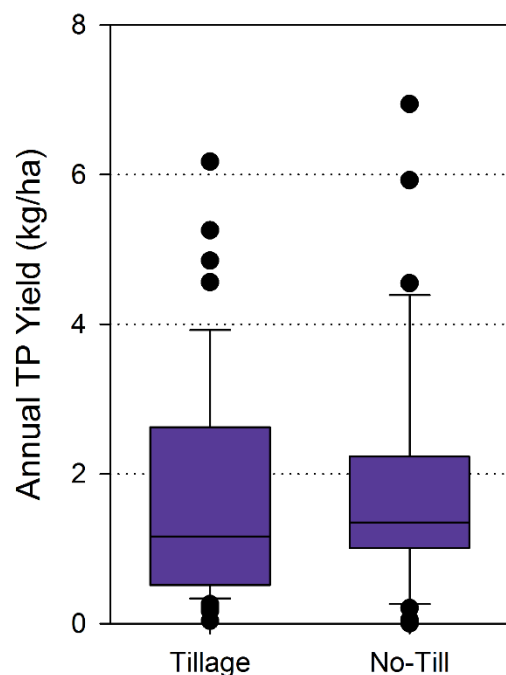
Watching soil test levels



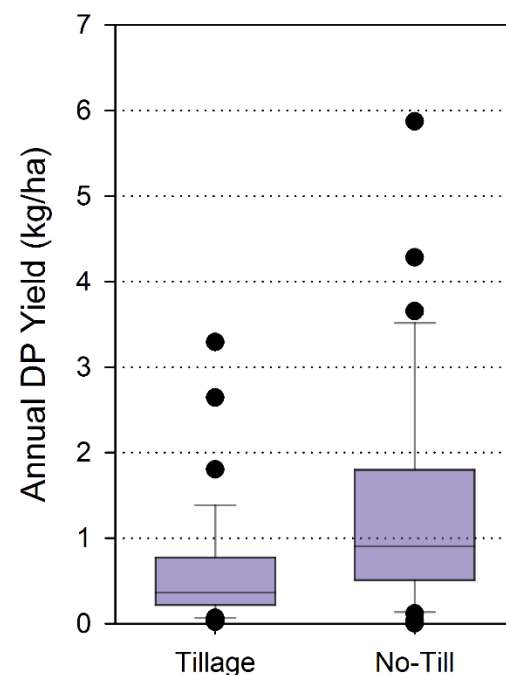
# The measures we've taken to reduce soil loss don't always reduce total phosphorus loss



Till median: 230 kg/ha  
No-till median: 74 kg/ha  
Rank sum p value: 0.002



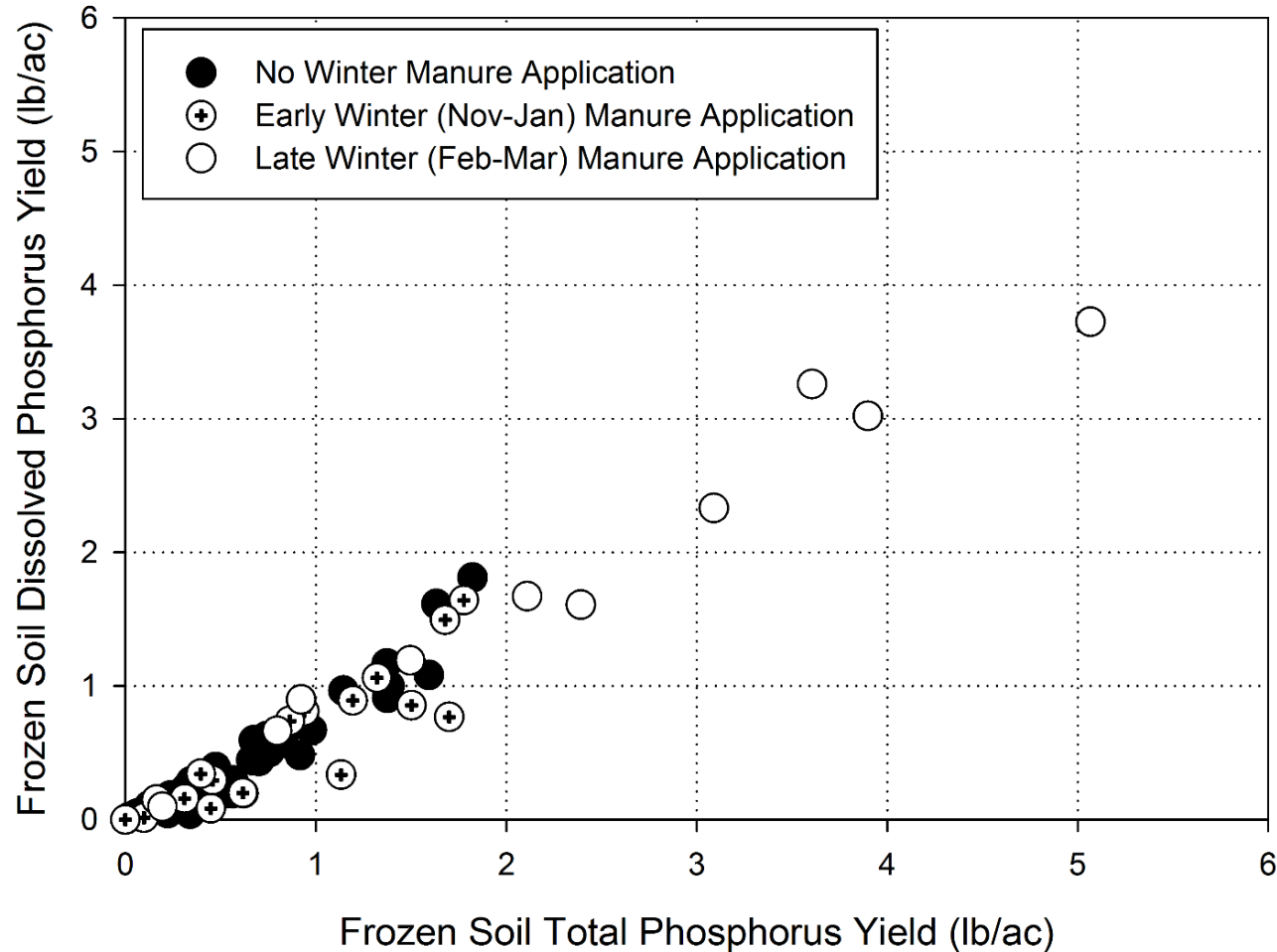
Till median: 1.2 kg/ha  
No-till median: 1.4 kg/ha  
Rank sum p value: 0.371



Till median: 0.4 kg/ha  
No-till median: 0.9 kg/ha  
Rank sum p value: <0.001

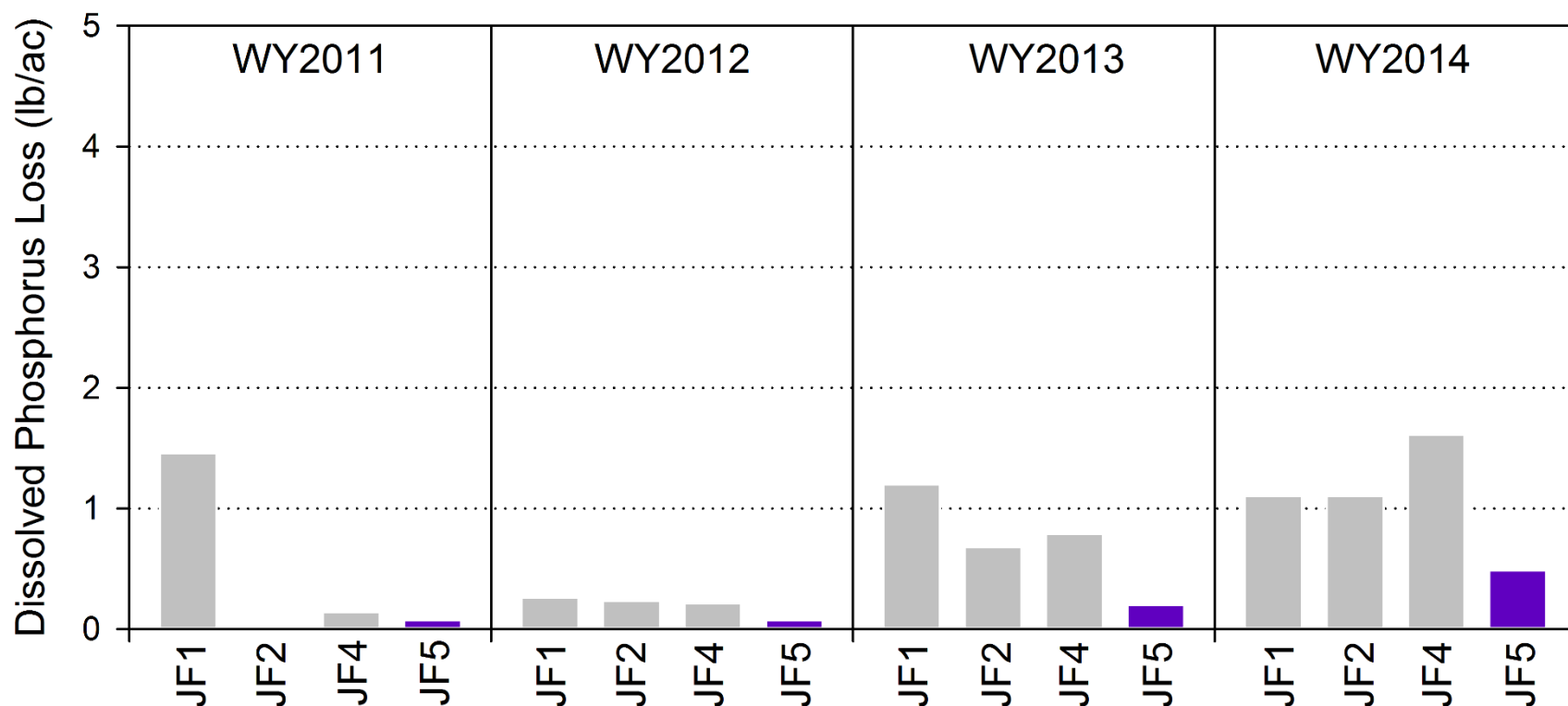
Till Count: 49; No-till Count: 36

# Late winter manure application can increase phosphorus loss in snowmelt by 2 to 4 times

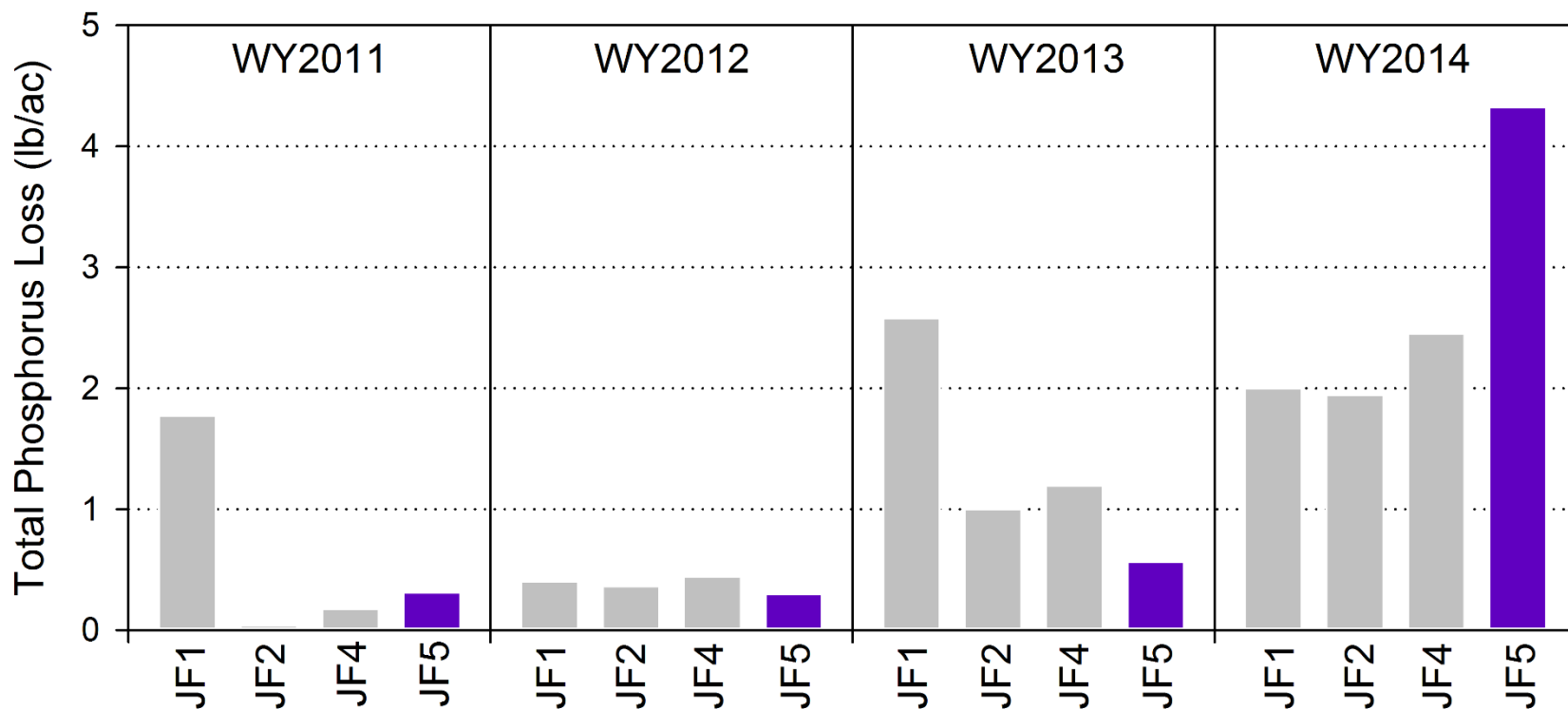




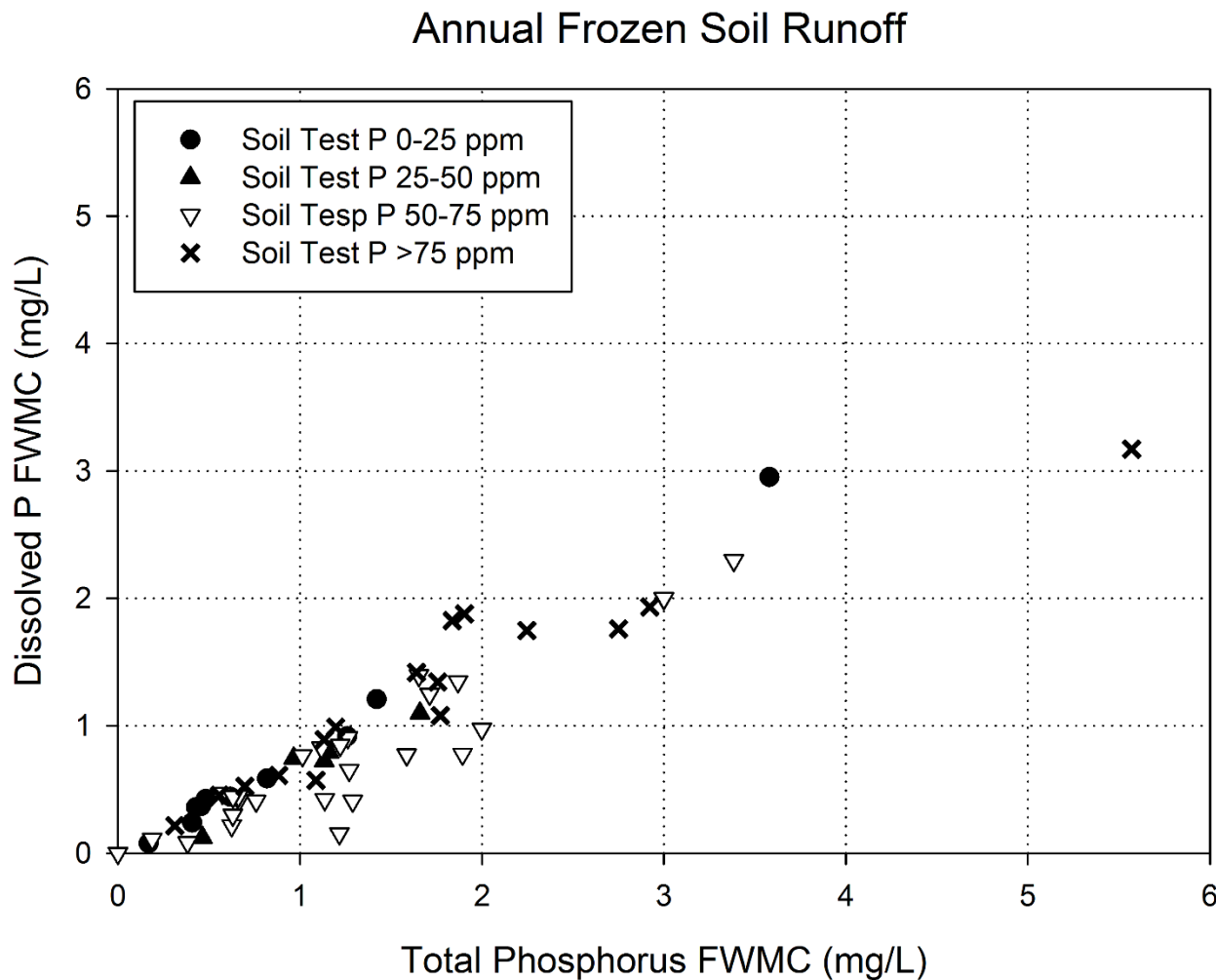
# Delivering nutrients below the surface reduces dissolved phosphorus loss, especially in winter runoff



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Watch placement and rate of phosphorus. Building soil test P levels can increase dissolved P runoff in the winter.



Every farm and every management system has an area where environmental impact could be improved

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[www.uwdiscoveryfarms.org](http://www.uwdiscoveryfarms.org)

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Amber Radatz

608-317-0001 • [aradatz@wisc.edu](mailto:aradatz@wisc.edu)