Protecting Water Quality with Cover Crops and Phosphorus Fertilizer Management

Nathan Nelson, Kraig Roozeboom, Peter Tomlinson, Gerard Kluitenberg, and Jeff Williams

Cover Crops:
- 2016: Winter wheat prior to soybean
- 2017: Triticale and rapeseed prior to corn
- Data averaged over fertility treatments

Weather
- 2016: 41.8 inches of rain, good distribution
- 2017: 30 inches of rain, dry June and July

Two years remaining in the study

---

*bars with different letters are significantly different within a given year or crop (p<0.05).
Protecting Water Quality with Cover Crops and Phosphorus Fertilizer Management

Nathan Nelson, Kraig Roozeboom, Peter Tomlinson, Gerard Kluitenberg, and Jeff Williams

Phosphorus Fertilizer Management:
• Control (no P application)
• Fall Broadcast (50 lb P2O5/ac applied on the surface in Nov./Dec.
• Spring Injected (50 lb P2O5/ac applied at planting in a 2x2 placement)

Two years remaining in the study

Figure 6. Phosphorus fertilizer application increased soil test P and maintained it above the critical level.*

Figure 7. Sub-surface fertilizer placement decreased total P loss by 26% in 2016 (p=0.07) and 32% in 2017 (p=0.005).*

Figure 8. Sub-surface fertilizer placement decreased dissolved P loss by over 40% each year.*

Figure 9. P Fertilizer application increased soybean yield by 10% (p=0.02) and corn yield by 18% (p=0.07).*

*bars with different letters are significantly different within a given year or crop (p<0.05).

Thank you to our funding agencies