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Broadening the Use of Perennial Native Vegetation for Nutrient Reduction on Marginal Farmland

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Project Highlights

- **Key prairie species establish well even in dry conditions**
 - Native warm and cool season grasses (e.g. big bluestem, wild rye) establish well in marginal dry soil, along with important summer and fall wildflowers (e.g. ox-eye, sunflowers)
- **Seed mixes customized for dry soils result in more ecological functions at similar price**
 - Dry adapted wildflowers established better than their medium to wet soil counterparts, resulting in more options for wildlife and pollinators- the entire spring forb functional group was missing from the non-customized mix
- **Cost-effectiveness of native perennial vegetation comparable in productive vs marginal soils**
 - Plants per dollar similar for many native grass and forb species

Background

Why Should Perennial Vegetation Nutrient Reduction Practices Target Marginal Lands?

- Lower barrier to adoption, often best choice economically when paired with conservation programs
- Reduce inputs altogether, puts unproductive land to use through multiple ecological benefits

Partnerships to Broaden Implementation Research

- Pheasants Forever, NRCS, Fayette County Conservation, TPC
- Multiple stakeholders using same retired farmland as research site for ag-oriented perennial vegetation questions

Objective: Compare Establishment and Cost Effectiveness for Different Seed Mixes That Differ In Soil Type Customization On Dry Marginal Soils

- Randomized design ($n=4$) planted November 2017 next to Wapsipinicon River near Fairbank, IA
- Two seed mixes from TPC seed calculator: 1) medium soil (\$365/ac, 46 species), 2) dry soil (\$368/ac, 49 species)

Figure 1. Study layout.



Figure 2. Marginal lands context.

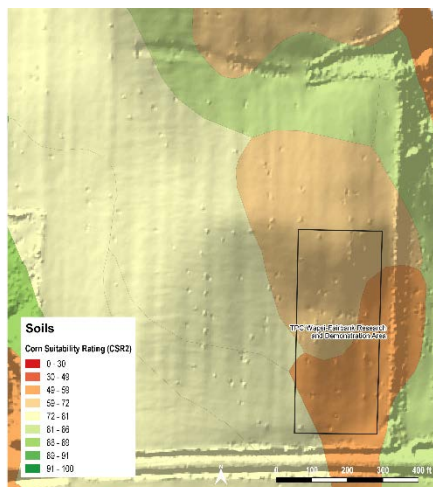


Figure 3. Site in Fall 2018.

