

Seed Mix and 1st-year Mowing Study

The effects of first year mowing on native plant emergence and growth using three different seed mixes planted in Northeastern Iowa

OBJECTIVES

We wished to assess and compare native plant and weed emergence and richness among three seed mix treatments, with and without establishment mowing. The seed mix treatments were: economy mix (3 grass seeds sowed for every 1 forb seed sowed), diversity mix (equal number grass and forb seeds sowed), and pollinator mix (1 grass seed sowed for every 3 forb seeds sowed). All plots were seeded in early April 2015.

Results from this research project will provide information on prairie plant establishment for three distinctly different seed mixes sowed with identical planting methods. In addition, the effect of first year mowing on native plant establishment will be tested. This information can be used to revise or develop seed mix recommendations for conservation plantings.



Grey Headed Coneflower



Swamp Milkweed

EXPERIMENT DESIGN (see report for full details)

Conducted at the Northeast Iowa Research Farm, Nashua. A 3 x 2 factorial experiment with three replications in each of two blocks. Plots were 6.1m x 8.5m.

SUMMARY AND MANAGEMENT IMPLICATIONS, FIRST YEAR RESULTS:

Frequent mowing in the first year increased native plant emergence, richness, and growth. Mowing in the first year prevented annual weeds and oat nurse crop from going to seed and reseeding themselves. Mowing produced larger prairie plants that may accelerate plant maturity in subsequent years. Some annual weeds started to go dormant by the 2nd week in August and mowing was discontinued. In contrast, most native seedlings after mid August appeared to be actively growing up until the killing frost in early November. Numerous native grass seedlings in mowed plots proceeded to flower after mowing was discontinued. The period between late summer to early fall may be critical to native seedling growth in year-1.

Species composition and seeding rates of the seed mix determined the composition of the stand in year-1. The pollinator mix included grass species that were a poor match to soil moisture conditions of the planting site. From a seed cost standpoint, this was wasteful spending. Key species in the pollinator mix that were ideally matched to the planting site included Indiangrass, swithgrass, and Canada wildrye. This was a missed opportunity to provide a minimal grass matrix in the stand. Big bluestem was sowed at a very low seeding rate in the pollinator mix, also contributing to very poor grass establishment. This may carryover to non-native grass invasion in subsequent years. The diversity mix outperformed

economy and pollinator seed mixes in seedling emergence and value for the money spent. The pollinator mix had the worst value for money spent in year-1.

SUMMARY AND MANAGEMENT IMPLICATIONS, SECOND YEAR RESULTS:

In general, the patterns and trends observed in the first year were also present in the second year. This summary report outlines the main findings of prairie performance of the three seed mixes and mowing treatments after the second growing season.

