

**INFLUENCE OF SEEDING RATE AND DIVERSITY ON ESTABLISHMENT OF PRAIRIE, WEEDY,
AND NON-NATIVE PLANT SPECIES IN PRAIRIE RESTORATIONS**

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Abstract: In recent years, agricultural producers and conservation organizations have restored thousands of hectares of grassland in the Great Plains. These restorations vary from low plant diversity (those planted through the U.S. Department of Agriculture's Conservation Reserve Program (CRP)) to high plant diversity (those implemented by conservation organizations). However, little is known about the relationship between diversity in these restorations and ecosystem services, including resistance to non-native and weedy plant species, functional diversity of predatory invertebrates, and soil development. These ecosystem services can confer resilience to a landscape dominated by intensive crop production. This study analyzed the effects of diversity and seeding rate on resistance to non-native and weedy species in experimental tallgrass prairie plots located in central Nebraska. In the spring of 2006, twenty-four 0.30-hectare plots were planted to six replicates in each of four treatments: high diversity sites of 97 species typically planted by The Nature Conservancy planted at a lower seeding rate, high diversity sites at twice this seeding rate, and low diversity sites using a CRP mix (CP25; 15 species), at low and high seeding rates. The composition of the plant community was assessed in mid-to late June 2007-2009. Basal stem cover was measured in six one-meter intervals along three 55-m long transects within each plot. In 2008 and 2009, the mean basal stem cover of non-native plant species was highest in the low diversity, low seeding rate plots and lowest in the high diversity, high seeding rate plots.