

# Establishment Strategies for Prairie Plant Mixes

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## Overview

- Prairies have largely disappeared from much of the US
- Complex native plant communities offer a host of ecosystems services, but can be tedious to establish and maintain until stable ( minimum of 5-10 years)
- We intend to develop establishment strategies for multiple landscape features, e.g., open pasture, riparian corridors, and woodlands/savannahs

## Methods

- Mix of 26 native species; 6 grasses and 20 forbs
- Factorial experiment with 4 replications (RCB)
- *Planting dates*: Fall (October), Winter (February), and Spring (April)
- *Planting types*: Drilling, hydroseeding, broadcasting
- *Preemergence herbicide* at time of planting: Plateau® +/-
- Data collection 6x between May and October 2024 with grid method (occurrence of a particular species per plot using 6 subsampling locations, plant frequency counts)



Plots were sized 10×30 feet. On the left, a plot that was drilled mid-April of 2024 and treated with Plateau® at time of planting. On the right, the same treatment and planting date without a Plateau® application. These plots were mowed May 15 to removed weedy biomass at 8 inches and treated with Plateau®. The planting effect is obviously still visible.

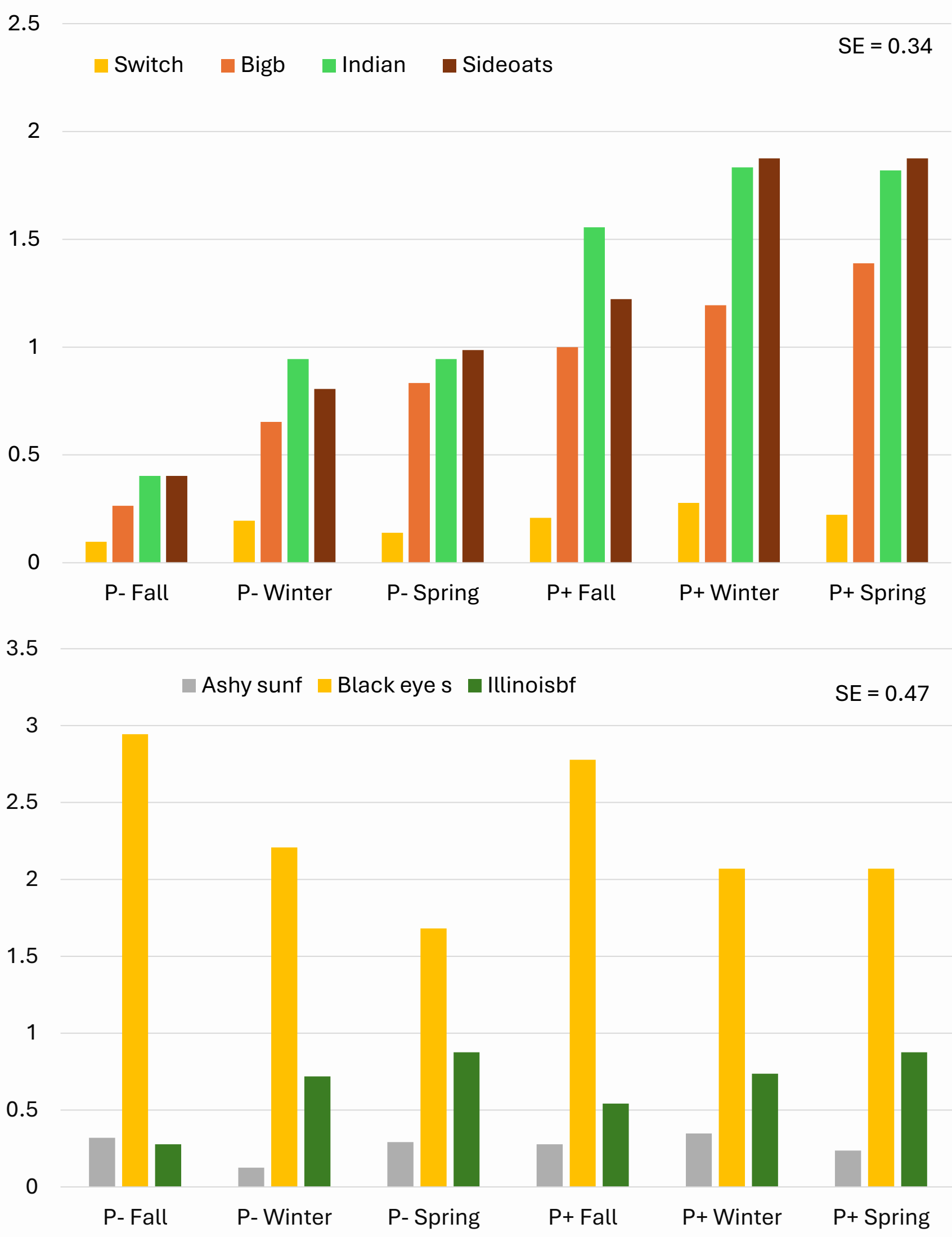


On the left, a plot established in April 2024 using the hydroseeding technique and treated with Plateau® at time of seeding. Hydroseeding is being used widely on roadsides and was included here as the original project intend was to find roadside native vegetation establishment strategies.

## Results

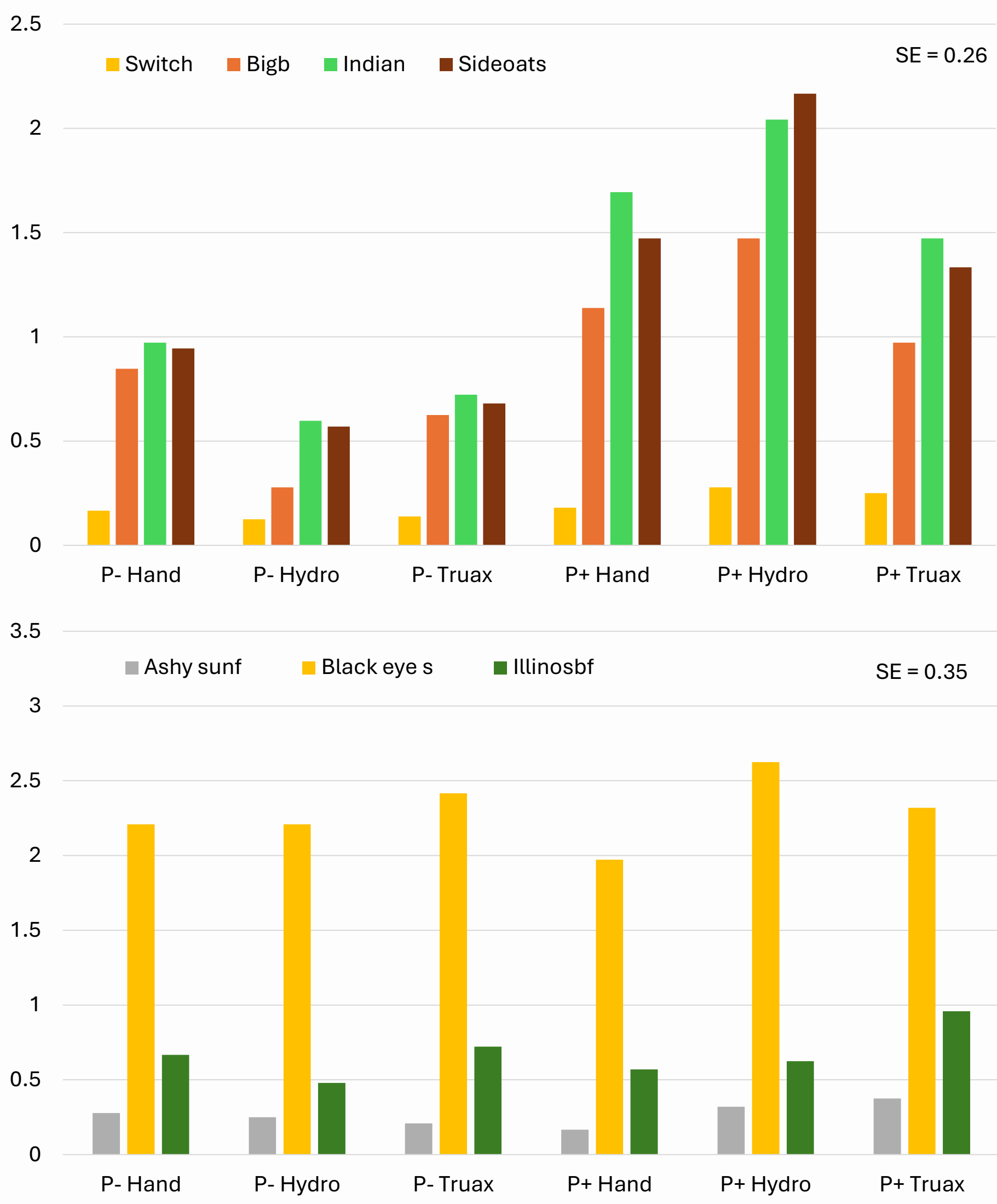
- Application of a pre-emergence herbicide had by far the greatest influence on establishment success (plant frequency counts)
- Plant counts for Indiangrass, little bluestem, and sideoats grama were significantly ( $P < 0.05$ ) higher for P+ than P-
- Forb species emergence seemed to be much less influenced by either planting dates or planting methods

Figure 1. Average frequency counts influenced by herbicide application at planting dates (season)<sup>1</sup>



<sup>1</sup>Species examples out of 26 total displayed here.

Figure 2. Average frequency counts influenced by herbicide application at planting method<sup>1</sup>



Mandatory for native, multi-species plant communities to reestablish successfully is a well-prepared weed-free seedbed. In our case, preparation took 12 months with repeated application of a non-selective herbicide, disking, cultivating, and “cultipacking” before planting. Pictured above is the Truax native seed drill we used for the ‘drill’ planting method. Above on the left is a hydroseeded and a drilled plot (note the denser canopy under the drilled planting method). The picture on the left shows a plot that was broadcasted.