Cleaning and Drill Based Establishment of Texas Bluegrass – Preliminary Results

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Introduction

Texas bluegrass is a perennial, cool season, native grass of the southern plains mixed-grass prairie in Oklahoma, Texas, and southern Kansas. It is one of a few cool season grasses that have withstood for centuries the region's heat, droughts and overgrazing. It produces nutritious and palatable forage during the late fall, winter and early spring when most rangeland forages are least preferred by livestock and lowest in nutrients. Used in a complementary grazing operation, Texas bluegrass could be an economical, environmentally friendly and sustainable alternative to using winter wheat as a cool-season forage. Establishment of pastures is not routine because the seed is covered with cottony chaf which makes planting difficult. Preliminary studies have been initiated to process Texas bluegrass seed to facilitate the flow through grass seed drills. A combination of specialized equipment previously developed at Woodward was used to modify the seed and facilitate the planting of Texas bluegrass. Cottony seed heads were harvested using a Woodward flail-vac harvester. The seeds were then passed through a hammer mill and cleaned in a WW2000 seed cleaner. Seeds were no-till drilled into herbicide killed wheat or feed stubble. Planting depth was controlled with the drill's hydraulic system and the half inch depth bands on the discs. Development of user-friendly Texas bluegrass seed can contribute to having an additional forage option in the Southern plains and elsewhere. Currently, the best germination of Texas bluegrass occurred when the modified seeds were drilled in March and ample precipitation was received for at least four weeks after planting.

Texas Bluegrass (*Poa arachnifera*)

>Cool season perennial

>Withstood the region's heat, droughts and overgrazing for centuries

>Nutritious and palatable forage production

Used in a complementary grazing operation, Texas bluegrass could be an economical, environmentally friendly and sustainable alternative to using winter wheat as a cool-season forage.

Establishment of pastures is not routine because the seed is covered with a glutinous/cottony chaf which makes harvesting/cleaning/drill planting difficult.

The Woodward Flail-Vac Seed Stripper

Developed by C. Dewald & A. Beisel

Airflow around the upward rotating brush pulls seed heads into the brush where seed are removed by flailing action and are propelled in the seed bin.

Seed is harvested with the flail-vac and then passed through a hammer mill and collected in 5 gallon buckets which are then loaded into the WW2000 seed conditioner (below).

The Woodward Chaffy Seed Conditioner 2000

Developed by C. Dewald & A. Beisel

The WW2000 is a novel seed cleaning device that has the ability to remove the cottony portion of the seed and sort the cleaned seed by weight. Cleaned seed is ejected out of the front of the conditioner while the cottony portion is blown out the back of the building through the black tube.

1:18pm

1:18pm

1:19pm

1:20pm

1:20pm

1:24pm

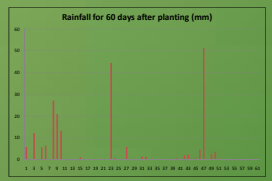
1:28pm

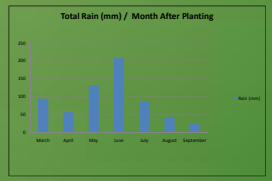
1:31pm

1:32pm

Cleaned seed is collected at a distance from 3 – 6 feet from the cleaner and ranged from 40 – 60% pure live seed with material harvested in 2007.

Seeds were no-till drilled using a Truax drill on March 22, 2007 and received ample rainfall for the first 60 days after planting.





Many seedlings persisted through the summer. The plot was mowed with a brushbeater to remove tall weeds including crabgrass and foxtail. Green rows started to become visible in mid to late October.

Summary

Combining the use of a flail-vac harvester, a hammer mill and the WW2000 cleaner we were able to obtain Texas bluegrass seed that would flow though a no-till drill. Seeds that were drilled in late March and received ample rainfall germinated and could be seen as rows within 60 days after planting. Currently (8-9 months after planting), it appears that many of the seedlings survived the summer and are starting to produce new fall growth. Future plans include determining how much of this original planting continues to establish and persist along with additional date planting studies to determine if a spring or fall planting date is more reliable for pasture establishment.