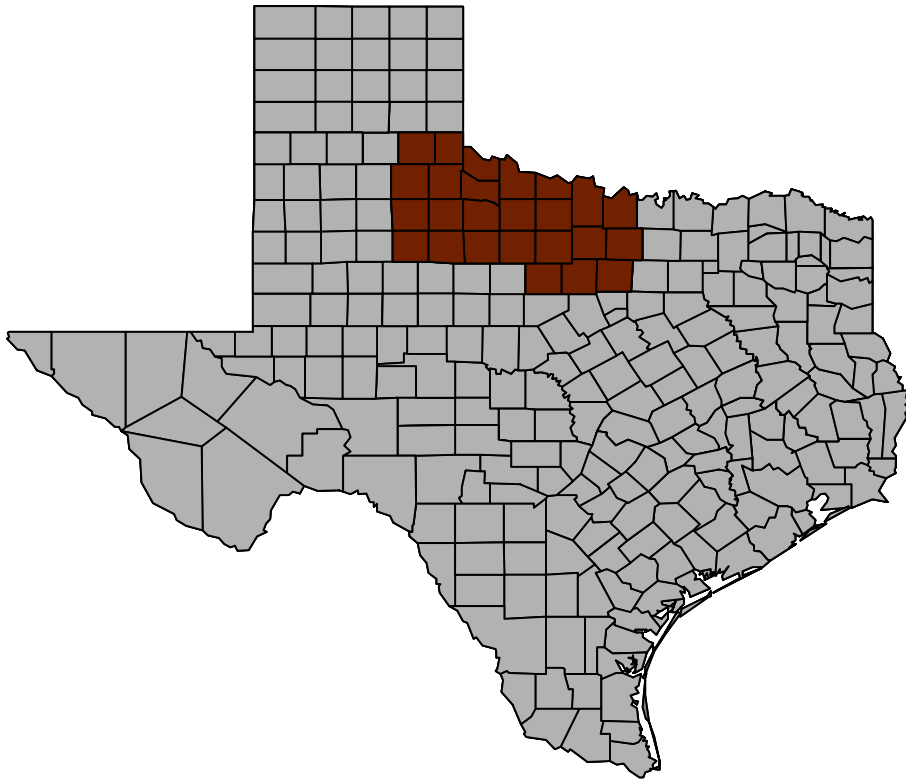


# ROLLING PLAINS

2000

## Pearl Millet Variety Evaluations



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# **Texas Rolling Plains Pearl Millet Hybrid Evaluations**

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## **INTRODUCTION**

A crop that can produce high yields with little moisture under high temperatures and will rotate easily with cotton would be a great benefit to farmers in the Rolling Plains. Pearl millet which is a grass like grain sorghum is very drought tolerant and may be able to produce high yields in the Rolling Plains environment. Pearl millet hybrids used in these trials were acquired from the University of Nebraska, which currently has an active pearl millet breeding program. Grain sorghum was included in the trials to compare pearl millet hybrids to grain sorghum hybrids.

The objective of these studies is to determine if pearl millet will provide high yields in the semiarid Rolling Plains environment.

## **PROCEDURE**

Hybrid trials were planted at the Chillicothe Research Station on an Abilene clay loam and at the Munday Research Station on a Miles sandy loam. Agronomic information is included in Table 1. The ground was disked and bedded for planting. A rolling cultivator was used to incorporate fertilizer. At planting, seed number was adjusted in accordance with percent germination and planted to produce 3 plants per foot of row. Seeds were planted with a John Deere flex planter on 30-in centers. Plots were 20 feet by four rows. A rotary hoe was used as necessary to prevent soil crusting. At Munday, 2 weeks after plant emergence, the field was row cultivated and 0.25

lbs ai/A atrazine and 2.0 lb ai/A alachlor were applied to control newly germinating large crabgrass and pigweed. Some minor plant stunting was observed on pearl millet. At Chillicothe, plots were row cultivated 4 weeks after emergence. Supplemental hand hoeing was used as needed to control weeds at both locations. At harvest, 16 feet of the center two rows were harvested by hand. A second planting at Chillicothe and Munday on July 11 and June 26, respectively, was later abandoned due to extreme drought.

### **SUMMARY**

Plant height and grain yield were dramatically different between the test sites (Table 2). Environmental conditions were very promising in June, with substantial rainfall at both Chillicothe and Munday. However, July and August lacked rainfall, and temperatures regularly exceeded 100 F. Both factors, in addition to the Miles sandy loam, resulted in decreased pearl millet and grain sorghum yields at Munday. At Chillicothe, soil moisture was not as limiting due to more rainfall in June. The Abilene clay loam at Chillicothe also has better soil moisture holding characteristics than the Miles sandy loam at Munday. Therefore, we believe moisture availability was the main reason for the substantially higher yields at Chillicothe compared with those from Munday.

Table 1. Agronomic and cultural information for the 2000 early-planted pearl millet hybrid trials at Munday and Chillicothe, TX.

	Munday	Chillicothe
<b>SOIL TYPE:</b>	Miles sandy loam	Abilene clay loam
<b>PREVIOUS CROP:</b>	cotton	cotton
<b>LAND</b>	disked and bedded	disked and bedded
<b>PREPARATION:</b>		
<b>PLANTING DATE:</b>	April 28, 2000	May 10, 2000
<b>SEEDING RATE:</b>	3 plants/ft	3 plants/ft
<b>TEST DESIGNS:</b>	randomized complete block	randomized complete block
<b>NUMBER</b>	15	15
<b>ENTRIES:</b>		
<b>PLOT SIZE:</b>	four, 30-inch rows by 20 ft	four, 30-inch rows by 20 ft
<b>REPLICATIONS:</b>	3	3
<b>FERTILIZER:</b>	50 lbs N/A, 25 lbs P/A	55 lbs N/A, 45 lbs P/A
<b>HERBICIDE:</b>	0.25 lbs ai/A atrazine and 2.0 lb ai/A alachlor	none
<b>INSECTICIDE:</b>	none	none
<b>IRRIGATIONS:</b>	none	none
<b>SIZE HARVESTED</b>	0.002 A	0.002 A
<b>PLOT:</b>		
<b>HARVEST DATE:</b>	July 26, 2000	August 11, 2000
<b>RAINFALL (inches):</b>	Apr (2.42), May (1.31), Jun (3.82), Jul (0.64), Aug (0.00), Sept (0.00)	Apr (4.01), May (1.34), Jun (7.73), Jul (1.09), Aug (0.00), Sept (0.11)

Table 2. Pearl millet and grain sorghum grain yield and plant height at Chillicothe and Munday, TX in 2000.

Hybrids	Bushels/A		Plant height (in)	
	Chillicothe	Munday	Chillicothe	Munday
59052A * 086R	49.2	13.3	46.3	37.4
59043A1w * 89-0083R1	47.0	3.5	47.7	34.1
59043Mw * 68A4R4w	41.6	8.3	46.7	37.3
59052A * 58001R	40.2	3.4	46.7	35.3
57135A * 58001R	39.7	2.0	46.3	39.8
68A * 086R	39.2	16.0	52.7	36.8
413M * 9Rm/4Rm	38.1	2.9	46.0	35.2
293A * 086R	37.4	12.5	50.0	37.7
68A1w * 89-0083R1w	37.0	4.7	49.0	36.1
68A * 89-0083R	36.9	12.3	55.3	35.6
68A1w * 0183R1w	34.7	11.2	48.3	39.9
413M/59052B * 9Rm/4R	34.1	4.4	48.3	35.7
59022A * 086R	33.2	5.7	45.7	33.9
Grain Sorghum W644E <sup>a</sup>	.	12.5	.	34.3
Grain Sorghum W625Y <sup>a</sup>	.	3.5	.	37.8
Test Mean	39.1	7.7	48.4	36.5
LSD (0.05)	NS	6.2	4.9	3.3
CV%	16.6	47.5	6.0	5.4

<sup>a</sup>Grain Sorghum W625Y and W644E are grain sorghum hybrids that were selectively destroyed at Chillicothe by wild hogs.