

SORGHUM AND PEARL MILLET

Background

The sorghum and pearl millet variety tests include varieties from pearl millet, sorghum, sudangrass, and sorghum/sudangrass hybrids. Sorghum is not tolerant of acidic soils and is adapted well to sandy loam and clay loam soils with a pH ranging between 6 and 7. Pearl millet is more tolerant to acidic soils than sorghum but similarly drought tolerant. When harvested for silage, seed should be in the dough stage and can possibly be harvested twice in Mississippi if planted by May and weather conditions are favorable. They are very responsive to nitrogen and can be rotationally grazed with a high stocking rate to utilize rapid growth. Hay quality is best when harvested at 30 to 40 inches.

Protocol

The experimental design was a randomized complete block with four replications. Plots were 6 feet by 10 feet in size with 3-foot alleys between plots and blocks. Tests were planted May 31, 2018, in Poplarville, May 25, 2018, in Starkville, May 30, 2018, in Prairie, and May 23, 2018, in Holly Springs using an ALMACO plot drill. Initial fertilizer application was 335 pounds per acre of 15-5-10 2 weeks after planting. Plots were harvested when more than 50% of the plots had reached 40 inches of height.

The entire plot was harvested using a Winterstieger Cibus S (Austria). Yields were recorded and subsamples collected for dry matter determination. Tables 6–9 present 2018 dry matter yields collected from Holly Springs, Starkville, Prairie, Starkville, and Poplarville. Data was analyzed using the General Linear Model (PROC GLM) of SAS and mean separation using the LSD at $\alpha = 0.05$.

Results

The variety tests were harvested July 24, 2018, in Poplarville, July 10, 2018, in Starkville, and August 2, 2018, in Prairie, and August 1, 2018, in Holly Springs. All locations, except Holly Springs, were infested with aphids and armyworms at the time of harvest, possibly suppressing growth for a second harvest. Holly Springs produced the greatest average yields with a relative yield of 140% of the state average (4,818 pounds of dry matter per acre). Prairie and Starkville locations produced only 62% and 84 % of the state average, respectively, in dry matter yield. Poplarville produced 112% of the state average. At all locations, pearl millet varieties produced dry matter yields greater than those of sorghum/sudangrass varieties.

Table 6. Sorghum and pearl millet dry matter yields at Holly Springs, 2018.

Variety	Species	Harvest date 8/1/18
		<i>lb/A</i>
ExCeddII BMR	Pearl Millet	7475
Epic BMR	Pearl Millet	3746
Tifleaf-3	Pearl Millet	7162
Surpass BMR	Sorghum/Sudangrass	6117
Xtragraze BMR	Sorghum/Sudangrass	5422
Premium stock	Sorghum/Sudangrass	8011
Leafy 22	Pearl Millet	9457
Leafy 23	Pearl Millet	5986
Pearl millet F1	Pearl Millet	8678
Hayking sudan	Sudangrass	6877
Green Grazer V	Sorghum/Sudangrass	5640
Mean		6779
CV%		19
LSD _{0.05}		1926
Soil Type: Grenada silt loam Planted: May 23, 2018 Fertilizer: 335 lb/A of 15-5-10 2 weeks after planting		

Table 7. Sorghum and pearl millet dry matter yields at Prairie, 2018.

Variety	Species	Harvest date 8/2/18
		<i>lb/A</i>
ExCeddII BMR	Pearl Millet	2840
Epic BMR	Pearl Millet	3547
Tifleaf-3	Pearl Millet	4156
Surpass BMR	Sorghum/Sudangrass	2359
Xtragraze BMR	Sorghum/Sudangrass	2723
Premium stock	Sorghum/Sudangrass	1876
Leafy 22	Pearl Millet	3882
Leafy 23	Pearl Millet	2540
Pearl millet F1	Pearl Millet	3429
Hayking sudan	Sudangrass	2925
Green Grazer V	Sorghum/Sudangrass	2733
Mean		3001
CV%		23
LSD _{0.05}		1193
Soil Type: Houston clay Planted: May 23, 2018 Fertilizer: 335 lb/A of 15-5-10 2 weeks after planting		

Table 8. Sorghum and pearl millet dry matter yields at Starkville, 2018.

Variety	Species	Harvest date 7/10/18
		<i>lb/A</i>
ExCeddIII BMR	Pearl Millet	4102
Epic BMR	Pearl Millet	3556
Tifleaf-3	Pearl Millet	3927
Surpass BMR	Sorghum/Sudangrass	3760
Xtragraze BMR	Sorghum/Sudangrass	4236
Premium stock	Sorghum/Sudangrass	3784
Leafy 22	Pearl Millet	5741
Leafy 23	Pearl Millet	2896
Pearl millet F1	Pearl Millet	4440
Hayking sudan	Sudangrass	4799
Green Grazer V	Sorghum/Sudangrass	3539
Mean		4071
CV%		30
LSD _{0.05}		NS ¹

¹NS: Not Significant
 Soil Type: Marietta fine sandy loam Planted: May 23, 2018
 Fertilizer: 335 lb/A of 15-5-10 2 weeks after planting

Table 9. Sorghum and pearl millet dry matter yields at Poplarville, 2018.

Variety	Species	Harvest date 7/24/18
		<i>lb/A</i>
ExCeddIII	Pearl Millet	6423
Epic BMR	Pearl Millet	5099
Tifleaf-3	Pearl Millet	7355
Surpass BMR	Sorghum/Sudangrass	4747
Xtragraze BMR	Sorghum/Sudangrass	6251
Premium stock	Sorghum/Sudangrass	2894
Leafy 22	Pearl Millet	5784
Leafy 23	Pearl Millet	3820
Pearl millet F1	Pearl Millet	6330
Hayking sudan	Sudangrass	5614
Green Grazer V	Sorghum/Sudangrass	5331
Mean		5423
CV%		27
LSD _{0.05}		2550

Soil Type: Basin loam Planted: May 23, 2018
 Fertilizer: 335 lb/A of 15-5-10 2 weeks after planting