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Sorghum Grass and Perennial Sweet Sorgrass for Alabama

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TWO NEW SORGHUM-JOHNSON hybrid forage plants are available to farmers. These plants offer high yields and the desirable qualities of Johnsongrass, and are less likely to become a pest in cultivated fields.

Results of tests with these grasses over the past two years by the Auburn Agricultural Experiment Station are presented in this report.

ORIGIN AND DESCRIPTION

Sorghum Grass or Columbus Grass (*Sorghum almum* Parodi) is often referred to by its scientific name of *Sorghum almum*. It is a natural hybrid of Johnsongrass and an unknown introduced sorghum, discovered in Argentina about 25 years ago. It has been grown in Australia, New Zealand, and South Africa, and was introduced into the United States in the mid-1940's. The major commercial supply of seed in the United States came from Australia and New Zealand in 1952.

Sorghum grass is a tall-growing perennial, reaching a height of 6 to 8 feet, Figure 1. It resembles Johnsongrass but has thicker stems and wider leaves. The heads are longer and spread more than Johnsongrass. The seed shatter easily and are larger than those of Johnsongrass. However, it is difficult to distinguish the seed from Johnsongrass seed. The rhizomes or rootstocks are thick, short, and turn upward close to the crown of the plant. The rootstocks do not penetrate as deep into the soil as Johnsongrass and are more easily eradicated by plowing. The prussic acid potential of sorghum grass determined by Texas agricultural researchers is relatively high and greater than that of Johnsongrass or sweet sudan.

Perennial sweet sorgrass (*Sorghum halepense* x S. sudanese) is a synthetic tetraploid of the sorghum species developed and released by the Texas Agricultural Experiment Station. The chromosome number of common sudangrass was doubled

Figure 1. Comparison of Sorghum almum, left, with Johnsongrass, right, at Auburn on July 28 shows regrowth after cutting on June 18.

Figure 2. Comparison of Johnsongrass, left, with perennial sweet sorgrass, right, at Auburn on July 28 shows regrowth after cutting on June 18.

by treatment with colchicine and crossed with Johnsongrass by workers at Cornell University in 1941. This hybrid was crossed with sweet sudan and selected by workers in Texas. It has the same number of chromosomes as Johnsongrass, so these two grasses can be expected to intercross freely.

Perennial sweet sorgrass is a tall-growing leafy plant, reaching a height of 6 to 8 feet, Figure 2. Although the stems are somewhat larger than Johnsongrass, they are smaller than those of sorghum grass. The stems, like sweet sudangrass, are sweet and juicy. Each plant will produce many tillers or stalks. Perennial sweet sorgrass, like sorghum grass, produces short and thick rhizomes or rootstalks in the soil surface. The seed do not shatter as readily as Johnsongrass seed. Seed size and shape are similar to sweet sudangrass. The long glumes covering the seed are chocolate brown with the seed itself being mostly tan and occasionally black.

RESULTS OF EXPERIMENTS

Data from clipping plots at four locations in the State are given in the table. In the year they were established, both sorghum grass and perennial sweet sorgrass were more productive than Johnsongrass. Sorghum grass outyielded perennial sweet sorgrass at Brewton during that year but at Tallassee and Auburn there was little difference between the two grasses.

Stands of both new grasses were severely depleted during the winter following the first harvest year. Early season production was much below that of Johnsongrass during the second year. However, profuse tillering of the remaining plants thickened stands so that *total yields* for the second year were similar to those of Johnsongrass at Tallassee and Marion Junction. Reduction in stand may possibly be associated with close clipping. Further experiments are planned for 1960 to study this problem.

YIELDS OF OVEN DRY FORAGE FROM PERENNIAL SWEET SORGRASS AND SORGHUM GRASS AT FOUR LOCATIONS IN ALABAMA, 1958-59

Species	Year	Yield per acre at[1]			
		Tallassee	Auburn	Marion Junction	Brewton
		Tons	*Tons*	*Tons*	*Tons*
Commercial Johnsongrass	1958	2.45	4.03		
	1959	5.94	2.52	5.74	1.02
Perennial sweet sorgrass	1958	4.62	5.56		
	1959	5.47	2.78	3.83	1.90
Sorghum almum	1958	3.88	5.65		
	1959	5.52	0.82	5.83	2.92

[1] Test at Marion Junction was replanted in July because of poor stand; therefore no yield data were obtained in 1958. All tests were planted in 1958 except at Brewton, which was planted in 1959.

Figure 3. Late growth of sorghum grass, left, is compared with Johnsongrass, right, at Tallassee, September 23.

Both the grasses had fewer seed heads and were more productive later in the summer than Johnsongrass, Figure 3. Two or three cuttings have been obtained each year. Thus far, leaf diseases have not been a problem. Observations indicate that neither of these grasses is likely to become a serious pest, and eradication will be relatively easy by plowing.

Both grasses can be used for grazing, hay, or silage. Observations indicate that when given free choice grazing, cattle prefer Johnsongrass to sorghum grass. For grazing or hay, a minimum planting rate of 10 pounds per acre in drill rows is suggested to give high yields and plants with a smaller stem size. Even at this seeding rate these grasses would probably be more difficult to cure for hay than Johnsongrass. This problem can be partially overcome by crushing the stems with a field hay conditioner.

Although good yields have been obtained with sorghum grass and perennial sweet sorgrass, production has been below that of the most productive millet variety, Gahi-1, grown by the Auburn Station. Gahi-1 millet has produced dry forage yields of over 7 tons per acre at Tallassee and over 6 tons at Auburn and Brewton.

Since the data available at this time are limited, this report should be considered preliminary. Testing of these grasses will be continued to determine more completely their value in Alabama.