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SUMMER ANNUAL GRASSES

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RAPID GROWING summer annual grasses like pearlmillet, sudangrass, and browntop millet are widely grown for temporary grazing and hay. Such crops provide good quality forage during the critical summer period. Since they are relatively expensive to grow, it is essential that the most productive varieties be used.

Some of the new sorghum-sudan hybrids showed promise of high production over a long season in tests by Auburn University Agricultural Experiment Station. These variety tests were done to identify most productive summer annual grasses among the large number that is available. Testing was at nine locations in 1963, but the testing period at six locations covered a 3-year period.

Test varieties were planted in plots 5 × 20 feet with rows 6 inches apart; the randomly arranged plots were repeated four times. A strip six rows wide and 20 feet long was harvested for yield records.

Tests were planted in late April or May and fertilized with 500 pounds of 4-12-12 per acre. This was followed with 40 pounds of nitrogen per acre when stands were up and after each clipping. Two to five cuttings were harvested each year.

HOW VARIETIES PERFORMED

Drought seriously reduced or limited growth in late summer and fall of 1963, Table 1-5. The

TABLE 1. FORAGE YIELDS OF SUMMER ANNUAL GRASSES IN NORTHERN ALABAMA

Entry	Oven dry forage per acre					
	Tennessee Valley Substation			Alexandria Experiment Field		
	1963	2-year average	3-year average	1963	2-year average	3-year average
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
Pfister Suchow 35	10,926	11,268	-------	4,182	-------	-------
T-E Grazemaster	9,575	-------	-------	-------	-------	-------
Gahi-1 millet	7,771	8,898	9,638	4,500	4,621	4,340
Gahi-2 millet	7,748	-------	-------	4,430	-------	-------
Frontier Hydan 38	7,621	9,659	9,494	4,037	3,206	2,686
T-E Haygrazer	7,512	11,928	11,318	4,956	3,471	3,243
DeKalb SX-11	7,496	9,035	9,049	4,047	3,098	3,049
Georgia Suhi-1 sudan	7,477	9,526	-------	3,867	3,533	3,654
Starr millet	7,261	7,515	8,188	4,099	4,529	3,895
Green M	6,706	-------	-------	4,501	-------	-------
Lindsey 77F	6,673	8,179	-------	4,427	3,484	-------
Asgrow Grazer	6,219	8,826	9,484	4,241	3,286	3,061
NK Sordan	5,719	-------	-------	-------	-------	-------
NK Trudan-1 sudan	5,495	-------	-------	-------	-------	-------
Browntop millet	4,294	4,444	4,950	4,309	4,863	4,014
Sweet sudan	4,236	5,544	6,177	4,154	3,025	2,619

TABLE 2. LEAF PERCENTAGE AND FORAGE YIELDS OF SUMMER ANNUAL GRASSES, AGRONOMY FARM, AUBURN

Entry	Leaf percentage of dry forage, 1963			Oven dry forage per acre		
	June 5	July 10	Aug. 15	1963	2-year average	3-year average
	Pct.	*Pct.*	*Pct.*	*Lb.*	*Lb.*	*Lb.*
T-E Haygrazer	53	54	54	6,018	6,218	5,128
Asgrow Grazer	61	60	52	5,660	6,288	6,781
Pfister Suchow 35	60	56	63	5,260	6,160	----
NK Sordan	54	54	72	5,257	----	----
Georgia Suhi-1 sudan	54	55	52	5,233	6,179	----
Green M	61	58	65	5,072	----	----
Frontier Hydan 38	49	55	58	5,053	5,367	5,557
Gahi-1 millet	85	67	70	4,912	5,920	6,642
Gahi-2 millet	75	44	55	4,884	----	----
DeKalb SX-11	69	56	55	4,828	5,455	5,465
Lindsey 77F	51	51	50	4,714	6,221	----
Starr millet	20	54	66	4,059	4,704	4,657

TABLE 3. LEAF PERCENTAGE AND FORAGE YIELDS OF SUMMER ANNUAL GRASSES, PLANT BREEDING UNIT, TALLASSEE

Entry	Leaf percentage of dry forage, 1963			Oven dry forage per acre		
	June 7	July 12	Aug. 13	1963	2-year average	3-year average
	Pct.	*Pct.*	*Pct.*	*Lb.*	*Lb.*	*Lb.*
Paymaster Sweet Sioux	53	36	51	13,180	10,568	----
Nebraska Su-1	60	35	45	12,955	----	----
Asgrow Grazer	55	31	44	12,830	10,102	11,785
Green M	50	42	44	12,629	----	----
NK Sordan	53	27	50	12,540	----	----
NK Trudan-1 sudan	43	25	46	12,507	9,050	----
Asgrow H-6160	56	35	60	11,870	----	----
Lindsey 77F	51	32	50	11,828	9,277	----
DeKalb SX-11	53	37	51	11,500	9,144	9,475
Georgia Suhi-1 sudan	55	31	40	11,441	8,755	10,484
T-E Grazemaster	49	31	48	11,422	----	----
Frontier Hydan 38	53	32	53	11,355	8,731	9,542
T-E Haygrazer	56	33	55	11,117	8,734	9,238
Pfister Suchow 35	63	43	48	10,985	8,524	----
Gahi-1 millet	63	38	----	9,948	9,138	8,969
Gahi-2 millet	72	48	----	9,354	----	----
Sweet sudan	47	31	61	9,006	6,357	6,451
Starr millet	66	41	----	7,298	6,652	6,848
Browntop millet	53	46	----	5,341	4,525	3,312

lone exception was the Black Belt Substation. Extended dry periods throughout the summer reduced yields drastically at the Alexandria Experiment Field and Lower Coastal Plain Substation.

On the basis of 2- and 3-year average yields at all locations, sorghum-sudan hybrids were equal to or more productive than Gahi-1 millet except at the Gulf Coast Substation. There, Gahi-1 millet produced higher total yields than the sorghum-sudan hybrids; however, the latter furnished more forage during early fall.

Yields of different sorghum-sudan hybrids were similar when compared during a 3-year period. All of these hybrids were much more productive than sweet sudan, which was seriously damaged by foliar diseases. Severe damage by foliar diseases was also observed at the Tennessee Valley Substation on Trudan-1, a hybrid sudan, and Sordan, a sorghum-sudan hybrid. These diseases reduced production in late summer. In contrast, Suhi-1, a high yielding hybrid sudangrass, had excellent disease resistance and made good forage growth in late summer and early fall.

Gahi-1 pearlmillet was more productive than Starr, an older variety. Gahi-2, a new variety with improved seed production, was equal in forage yield to Gahi-1. Both Gahi-1 and Gahi-2 pearlmillets were generally more leafy than the sorghum-sudan hybrids or sudangrass. None of the pearlmillet varieties was productive on lime soil at the Black Belt Substation.

Browntop millet yielded only about half as much forage as pearlmillet or sorghum-sudan hybrids. Season of production of browntop millet was shorter than that for other summer annual grasses.

TABLE 4. FORAGE YIELDS OF SUMMER ANNUAL GRASSES IN CENTRAL ALABAMA

Entry	Oven dry forage per acre				
	Black Belt Substation		Prattville Field		Lower Coastal Plain Substation
	1963	2-year average	1963	2-year average	1963
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*
T-E Haygrazer	13,439	13,434	6,761	-------	6,595
Asgrow Grazer	13,284	13,692	6,992	5,730	7,592
NK Sordan	13,026	-------	7,442	-------	-------
Lindsey 77F	12,932	12,476	8,176	5,798	6,365
Frontier Hydan 38	12,870	11,822	-------	-------	-------
Green M	12,477	-------	6,911	-------	8,435
Georgia Suhi-1 sudan	12,322	11,880	6,214	4,780	-------
Green Gro	12,136	-------	-------	-------	-------
Pfister Suchow 35	12,074	12,418	6,923	4,955	9,057
Paymaster Sweet Sioux	12,036	-------	-------	-------	-------
NK Trudan-1 sudan	11,514	-------	-------	-------	-------
DeKalb SX-11	11,212	11,541	6,686	5,001	8,892
Sweet sudan	6,910	8,399	3,177	3,043	6,320
Gahi-1 millet	6,255	5,538	4,471	4,974	9,376
Gahi-2 millet	6,177	-------	3,956	-------	8,522
Browntop millet	-------	-------	3,418	3,732	-------
Leafy Sue	-------	-------	-------	-------	8,249
Golden Sue	-------	-------	-------	-------	8,228
Pioneer 930	-------	-------	-------	-------	8,053
Pioneer XF 011	-------	-------	-------	-------	8,005
T-E Grazemaster	-------	-------	-------	-------	7,377

TABLE 5. FORAGE YIELDS OF SUMMER ANNUAL GRASSES IN SOUTHERN ALABAMA

Entry	Oven dry forage per acre					
	Gulf Coast Substation			Brewton Experiment Field		
	1963	2-year average	3-year average	1963	2-year average	3-year average
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
Lindsey 77F	7,753	-------	-------	5,165	4,511	-------
Asgrow Grazer	7,442	6,997	6,894	5,693	5,967	6,702
Green M	7,374	-------	-------	5,224	-------	-------
Gahi-1 millet	7,093	10,247	10,304	5,081	6,916	6,433
Georgia Suhi-1 sudan	6,681	7,585	-------	3,988	2,755	-------
Gahi-2 millet	6,681	-------	-------	5,782	-------	-------
DeKalb SX-11	6,403	7,129	7,828	4,482	4,642	5,537
T-E Haygrazer	6,289	-------	-------	5,393	6,210	-------
Asgrow H-6160	-------	-------	-------	6,241	-------	-------
NK Sordan	-------	-------	-------	5,767	-------	-------
Pfister Suchow 35	-------	-------	-------	4,913	-------	-------
Browntop millet	-------	-------	-------	4,760	4,157	3,378
Sweet sudan	-------	-------	-------	3,692	2,787	2,815

SUMMARY

1. Yields of sorghum-sudan hybrids were generally equal to or superior to those of pearlmillet, except at the Gulf Coast Substation. There were no consistent yield differences between individual sorghum-sudan hybrids tested during the 3-year period.

2. Pearlmillet yields were much lower than sorghum-sudan and sudangrass hybrids on lime soil at the Black Belt Substation.

3. Gahi-1 pearlmillet was more leafy throughout the season than the sorghum-sudan hybrids or sudan hybrids.

4. Sorghum-sudan and sudangrass hybrids were usually more productive than pearlmillet in late summer and early fall.

5. Sweet sudan and browntop millet generally had the lowest yields and shortest productive season of the species tested.

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