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AGRONOMY NOTES

DEPARTMENT of AGRONOMY ————— Lexington 40506

Vol. 4, No. 3

June, 1971

FORAGE SORGHUM AND FORAGE PEARL MILLET PERFORMANCE LEXINGTON, KENTUCKY 1970

Roy E. Sigafus

Most livestock producers, especially dairy farmers, have a need for a high quality roughage in summer when cool-season grass pastures are normally low in production. Alfalfa and clover-grass mixtures grazed rotationally, and small grain and "grass" silage or hay are common sources of summer feed. There is an increasing interest, however, in forage sorghums and forage millets for grazing or green-chop.

There are many reports of satisfactory yields of these crops when seeded a week or two after corn planting time. When seeded between May 15 and June 1, grazing types are ready for use by the first week in July, or earlier, if the moisture is favorable and temperatures are average or above.

These forages grow rapidly and should be put on good land and fertilized at least as well as for corn. A soil test is the best guide for lime, phosphate, and potash. Nitrogen should be added at the rate of 100 pounds before seeding and up to 50 pounds (175 pounds of ammonium nitrate equivalent) for each of two applications beyond the first grazing or cutting. If a soil test has not been made, use about 1000 pounds of 10-10-10 per acre. When put on good soil and adequately fertilized as many as 4 or 5 grazing or chopping cycles are possible, and at least two silage cuts can be made.

Sorghum seed producers claim that the crop can be seeded as late as August 1. This may be true, but yields will likely be much lower than from earlier plantings. In a recent test in Indiana, forage sorghums planted June 19 yielded only 50 to 70 percent as much as the same varieties planted May 21.

FORAGE SORGHUM AND FORAGE MILLET TEST RESULTS, LEXINGTON 1970

Seedings were made on UK farms, one on June 17 and another on July 11, 1970. Soil levels of P and K were high and nitrogen was applied at the rate of 360 pounds of ammonium nitrate per acre just after emergence. Seed was drilled into 20-inch rows at a rate of 25 lb/A. At the Spindletop location seeded June 17, two yield samples were taken, the first on August 29, 78 days after planting, and a second on October 6, which was 111 days after seeding. At 78 days after seeding some varieties had not started to head while others were in the soft dough stage, just right for silage. Yields ranged from 4 to 7 tons dry weight per acre. Silage types averaged 5.86 tons/A. The sudan-grass-sorghum hybrids averaged 87% as much as the silage types, and the millets and sudangrasses 81 and 71% as much. Because of very dry weather there was little additional accumulation of yield, as shown by the 111-day harvest. Many varieties lodged toward maturity.

Yields from the July 11 planting on the Main Campus Farm were taken in two ways. In a two-harvest system the plants were cut at a grazing stage at 37 days after seeding and again 46 days later. In the second cutting system, yields were taken at 83 days after seeding at what would have been an early silage stage for most varieties. The one-cut system produced about 50% more dry matter per acre than the two-cut system but was much stemmier. See the following two tables for additional information.

TABLE 2. PERFORMANCE OF SILAGE SORGHUMS AND PEARL MILLET HYBRIDS
LEXINGTON, KENTUCKY 1970

Plot Location: Planting Date: ^{1/} Harvest Date:	Spindletop Farm, Lexington, Ky. June 17, 1970						Campus Farm, Lexington, Ky. July 11, 1970					
	9-3	9-3	9-3	10-6	10-6	10-6	8-17	10-2 (Total)	10-2	10-2	10-2	
	DM, T/A	Height, inches	Maturity rating	DM, T/A	Height, inches	Lodging rating ^{2/}	DM, T/A	DM, T/A	DM, T/A	DM, T/A	Height, inches	Maturity rating ^{3/}
<u>Silage Sorghums:</u>												
1. Pioneer 931	7.12	85	2.0	6.19	101	1.3	2.04	1.37	3.41	6.02	90	2.7
2. Rudy-Patrick 55F	7.12	70	4.7	5.75	81	6.7	2.10	1.42	3.52	6.08	67	7.0
3. Asgrow Titan R	6.86	66	7.3	5.75	81	6.3	1.72	1.45	3.17	6.37	65	7.0
4. DeKalb FS-1A	6.52	58	7.7	4.62	69	6.3	1.66	1.28	2.94	4.81	56	7.0
5. Paymaster Aztec	6.48	74	6.7	6.84	79	5.0	1.93	1.12	3.05	6.10	69	6.7
6. Asgrow Beefbuilder T	6.41	68	2.0	5.97	85	5.3	2.05	1.18	3.23	5.99	69	6.7
7. Taylor-Evans Milkmaker	6.28	72	6.7	6.30	83	7.7	1.95	1.49	3.44	5.38	66	7.0
8. Advance 1085-G	5.81	66	1.7	6.60	93	6.0	1.65	1.42	3.07	6.12	73	6.3
9. Rudy-Patrick Sumax	5.70	62	5.3	6.10	86	3.7	1.78	1.56	3.34	5.95	60	7.3
10. Pioneer 927	5.67	61	3.7	5.02	65	6.7	1.75	1.18	2.93	5.87	60	6.0
11. Taylor-Evans TDN	5.33	52	3.3	6.26	67	2.0	1.78	1.70	3.48	5.27	55	6.3
12. DeKalb FS-4	5.27	66	7.0	5.41	91	6.3	2.07	1.58	3.65	5.70	66	7.3
13. DeKalb FS-24	5.25	58	3.7	6.17	74	6.3	1.82	1.35	3.17	5.29	54	6.7
14. Frontier S-209	5.17	74	7.7	5.80	85	2.3	2.06	1.58	3.64	6.32	71	7.0
15. Asgrow Duet	4.97	61	7.7	5.78	76	6.7	1.69	1.43	3.12	5.41	59	7.0
16. Northrup-King 318S	4.89	64	4.3	5.69	69	3.3	1.93	1.17	3.10	5.67	64	6.0
17. Frontier S-214	<u>4.74</u>	68	2.3	<u>5.09</u>	81	5.7	<u>1.98</u>	<u>1.24</u>	<u>3.22</u>	<u>4.99</u>	63	6.7
(Mean Yield)	5.86			5.84			1.88	1.38	3.26	5.72		
<u>Pearl Millet Hybrids:</u>												
1. Northrup-King Millex 22	5.72	57	3.3	4.25	73	2.3	1.47	1.47	2.94	3.43	60	7.3
2. DeKalb X001	5.14	52	1.7	4.99	67	1.0	1.65	1.60	3.25	4.47	59	6.7
3. Pioneer PM 604	4.82	56	1.7	5.08	74	1.0	1.58	1.53	3.11	4.52	64	7.3
4. Excel Mill-Hy 99	4.67	63	4.7	6.07	76	1.3	1.53	1.62	3.15	3.87	58	7.3
5. Rudy-Patrick Pearlex 24	<u>3.40</u>	56	1.7	<u>5.64</u>	64	1.0	<u>1.50</u>	<u>1.47</u>	<u>2.97</u>	<u>3.92</u>	56	5.7
(Mean Yield)	4.75			5.21			1.55	1.54	3.08	4.04		

^{1/} Seeding rate 25 pounds per acre in 20-inch rows.

^{2/} Lodging Rating - 1=Upright, 9=Severe Lodging

^{3/} 1 = vegetative, 2 = boot, 3 = early heading, 4 = early bloom, 5 = full bloom, 6 = past bloom, 7 = milk stage, 8 = dough stage, 9 = past dough stage.

TABLE 1. PERFORMANCE OF SUDANGRASS AND SUDANGRASS-SORGHUM HYBRIDS
LEXINGTON, KENTUCKY 1970

Plot Location: Planting Date: ^{1/} Harvest Date:	Spindletop Farm, Lexington, Ky. June 17, 1970						Campus Farm, Lexington, Ky. July 11, 1970					
	9-3	9-3	9-3	10-6	10-6	10-6	8-17	10-2	(Total)	10-2	10-2	10-2
	DM, T/A	Height, inches	Maturity rating	DM, T/A	Height, inches	Lodging ^{2/} rating	DM, T/A	DM, T/A	DM, T/A	DM, T/A	Height, inches	Maturity rating ^{3/}
Sudangrass Hybrids & Varieties:												
1. CaI-West Monarch	4.38	68	8.7	4.41	86	1.7	1.97	2.00	3.97	5.35	72	7.3
2. Piper							1.55	1.92	3.47	4.77	74	7.3
3. Northrup-King Trudan 2	4.01	77	8.7	4.80	96	3.7	1.31	2.09	3.40	4.66	73	7.3
4. Rudy-Patrick Trudy G	4.11	69	8.0	4.78	90	1.3	1.59	1.77	3.36	4.43	72	7.0
5. Sweet Sudan							1.58	1.73	3.31	4.14	67	7.0
6. Greenleaf							<u>1.39</u>	<u>1.51</u>	<u>2.90</u>	<u>4.52</u>	69	6.7
(Mean Yield)	3/						1.56	1.84	3.80	4.64		
Sorghum-Sudangrass Hybrids:												
1. Pioneer 988	4.93	76	7.7	5.53	87	6.0	2.35	2.08	4.43	5.97	74	7.0
2. Advance 1038-G	5.86	83	9.0	6.55	100	5.7	1.95	2.27	4.22	4.97	80	8.0
3. DeKalb ST-6	4.52	78	6.7	5.55	98	2.3	1.94	2.26	4.20	5.24	86	7.0
4. Frontier Hidan 35	4.88	75	8.7	5.16	92	5.3	2.13	2.07	4.20	5.67	77	7.7
5. Pennington Summergrazer	4.26	71	8.3	6.25	97	7.0	2.14	1.92	4.06	5.80	77	7.3
6. DeKalb SX-16	6.31	73	6.3	6.06	102	7.0	2.37	1.67	4.04	6.46	76	7.0
7. Asgrow Astro	4.49	77	8.3	5.30	97	4.7	2.14	1.83	3.97	5.63	78	7.7
8. Northrup-King Sordan 88	4.92	74	8.0	5.45	88	6.0	1.98	1.97	3.95	4.55	74	7.0
9. DeKalb SX-12	5.55	77	5.0	5.83	102	1.3	1.94	1.99	3.93	5.41	81	6.7
10. Asgrow Grazer S	5.06	68	8.0	5.78	88	7.7	2.03	1.90	3.93	5.80	72	7.0
11. Asgrow Grazer N	5.53	74	7.7	4.71	90	5.3	2.17	1.74	3.91	5.77	77	7.0
12. FFR 66	4.30	73	7.3	5.75	88	3.7	1.91	1.83	3.74	6.14	77	7.0
13. DeKalb ST-5	5.38	75	8.0	4.90	94	6.0	1.90	1.74	3.64	5.00	71	8.0
14. Taylor-Evans Haygrazer	5.49	78	7.3	5.90	92	3.7	1.71	1.75	3.46	5.22	75	6.3
15. DeKalb SX-11	<u>5.11</u>	73	7.7	<u>5.58</u>	92	6.7	<u>1.82</u>	<u>1.62</u>	<u>3.44</u>	<u>5.52</u>	76	7.0
(Mean Yield)	5.11			5.62			2.03	1.91	3.94	5.54		

^{1/} Seeding rate 25 pounds per acre in 20-inch rows

^{2/1} = Upright, 9 = Severe Lodging

^{3/1} = vegetative, 2 = boot, 3 = early heading, 4 = early bloom, 5 = full bloom, 6 = past bloom, 7 = milk stage, 8 = dough stage, 9 = past dough stage.