University of Kentucky
College of Agriculture, Food and Environment
Agricultural Experiment Station

2021 Annual Grass Report: Warm Season and Cool Season (Cereals)

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Introduction

Summer annual grasses provide an important forage crop option for producers in Kentucky. These grasses are mainly used as emergency or supplemental pasture, silage, or hay crops, but little information is available on their yield potential. The purpose of this publication is to summarize the University of Kentucky 2008-2021 forage yield trials with sudangrass, sorghum/sudangrass, forage sorghum, millets, teff, crabgrass, and cereal crops.

Sudangrass *(Sorghum bicolor* ssp. *drummondii)* is a rapidly growing annual grass in the sorghum family. It is medium yielding and well suited for grazing or hay because of its smaller stem size. Sudangrass regrows quickly after harvest and can be harvested several times during summer and early fall.

Sorghum x sudangrass hybrids are more vigorous and slightly higher yielding than sudangrass. A larger stem size makes these hybrids less useful for hay; therefore, they are commonly used for baleage and grazing.

Forage sorghum is used primarily as silage for livestock and is typically a one-cut crop. It grows 9 to 12 feet tall with the exception of the dwarf varieties, and is typically harvested when the seed is in the milk to soft dough stage.

Pearl millet (*Pennisetum glaucum*) is the most widely grown type of millet. It is well adapted to production systems characterized by drought, low soil fertility, and high temperature. It is higher yielding than foxtail millet and regrows rapidly after harvest if an 8- to 10-inch stubble height is left. Dwarf varieties, which are leafier and better suited for grazing, are available.

The brown midrib or BMR trait is an outward expression of a genetic mutation in forage sorghum, sorghum-sudangrass, sudangrass, and pearl millet. In most cases, plants possessing the BMR trait contain less or altered lignin, making the plant more digestible and more desirable for animal production. Therefore, it is beneficial to seed summer annuals that have the BMR trait in addition to other desirable characteristics like high yield. With BMR varieties, the midrib of the leaf appears brown or tannish in color.

Teff, also referred to as summer lovegrass (*Eragrostis tef*), is a warm-season annual grass native to Ethiopia which has been used as a grain crop for thousands of years. Recently, there has been considerable interest in teff as a forage crop. It is high quality, palatable, and fine-stemmed and therefore makes excellent hay.

Crabgrass (*Digitaria sanguinalis*) is a warm season annual that propagates by seed. It is adapted to many soil types. Crabgrass can be utilized by either grazing or haying and is one of the highest quality warm season forages at a vegetative stage.

Contents **Table**

Table 1. Temperature and rainfall at Lexington, Kentucky in 2019, 2020, and 2021.

	2019				2020				2021[2]			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	33	+2	4.11	+1.25	40	+9	3.72	+0.86	34	+3	4.51	+1.65
FEB	42	+7	7.64	+4.43	38	+3	5.14	+1.93	31	-4	4.60	+1.39
MAR	43	-1	3.49	-0.91	51	+7	3.79	-0.61	50	+6	5.12	+0.72
APR	54	+4	4.76	+0.88	52	-3	4.92	+1.04	54	-1	2.72	-1.16
MAY	69	+5	4.49	+0.02	62	-2	5.69	+1.22	62	-2	4.34	-0.13
JUN	73	+1	6.13	+2.47	72	0	2.56	-1.10	73	+1	6.26	+2.60
JUL	79	+3	3.30	-1.70	79	+3	3.23	-1.77	75	-1	5.90	+0.90
AUG	77	+2	2.42	-1.51	75	0	3.41	-0.52	76	+1	6.16	+2.23
SEP	77	+9	0.18	-3.02	68	0	4.43	+0.83	69	+1	3.03	-0.17
OCT	61	+4	7.55	+5.58	57	0	4.98	+2.41	62	+5	3.68	-1.11
NOV	41	-4	5.39	+2.00	49	+4	2.18	-1.21				
DEC	43	+7	5.74	+1.76	36	0	2.27	-1.71				
Total			55.20	+10.65			45.92	+1.37			46.32	+9.14

[1] DEP is departure from the long-term average.
[2] 2021 data is for ten months through October.

Table 2. Temperature and rainfall at Princeton, Kentucky in 2019, 2020, and 2021.

	2019				2020				2021[2]			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	36	+2	3.62	-0.18	40	+6	4.27	+0.47	38	+4	5.02	+1.22
FEB	43	+5	11.14	+6.71	40	+2	6.80	+2.37	32	-6	3.64	-0.79
MAR	44	-3	3.34	-1.60	52	+5	6.63	+1.69	52	+5	5.35	+0.41
APR	59	0	4.5	-0.30	54	-5	3.08	-1.72	56	-3	4.73	-0.07
MAY	69	+2	5.61	+0.05	64	-3	5.48	+0.52	64	-3	4.52	-0.64
JUN	73	*2	4.33	+0.48	74	-1	5.13	+1.28	75	0	6.89	+3.04
JUL	77	-1	3.12	-1.17	79	+1	6.31	+2.02	77	-1	7.03	+2.74
AUG	76	-1	6.31	+2.30	75	-2	3.77	-0.24	77	0	3.08	-0.93
SEP	75	+4	0.34	-2.99	69	-2	4.93	+1.60	70	-1	2.59	-0.74
OCT	59	0	6.36	+3.31	57	-2	7.45	+4.40	65	+6	7.01	-1.04
NOV	42	-5	6.94	+2.31	51	+4	2.36	-2.27				
DEC	43	+4	3.32	-1.82	39	0	2.84	-2.20				
Total			58.93	+7.80			59.05	+7.92			44.66	+3.02

[1] DEP is departure from the long-term average.
[2] 2021 data is for the ten months through October.

Cool season annual grasses (specifically cereal crops) are also used as forage crops for hay, baleage, or grazing. The cereal crops used in this report are wheat (*Triticum aestivum*), rye (*Secale cereale*), oats (*Avena sativa*), and triticale (*Triticum secale*).

Table 3. Descriptive scheme for the stages of development in perennial forage grasses.

Code	Description	Remarks
	Leaf development	
11	First leaf unfolded	Applicable to regrowth of established (plants) and to primary growth of seedlings.
12	2 leaves unfolded	Further subdivision by means of leaf development index (see text).
13	3 leaves unfolded	
•	• • • • •	
19	9 or more leaves unfolded	
	Sheath elongation	
20	No elongated sheath	Denotes first phase of new spring growth after overwintering. This character is used instead of tillering which is difficult to record in established stands.
21	1 elongated sheath	
22	2 elongated sheaths	
23	3 elongated sheaths	
•	• • • • •	
29	9 or more elongated sheaths	
	Tillering (alternative to sheath elongation)	
21	Main shoot only	Applicable to primary growth of seedlingsor to single tiller transplants.
22	Main shoot and 1 tiller	
23	Main shoot and 2 tillers	
24	Main shoot and 3 tillers	
•	• • • • •	
29	Main shoot and 9 or more tillers	
	Stem elongation	
31	First node palpable	More precisely an accumulation of nodes. Fertile and sterile tillers distinguishable.
32	Second node palpable	
33	Third node palpable	
34	Fourth node palpable	
35	Fifth node palpable	
37	Flag leaf just visible	
39	Flag leaf ligule/collar just visible	
	Booting	
45	Boot swollen	
	Inflorescence emergence	
50	Upper 1 to 2 cm of inflorescence visible	
52	¼ of inflorescence emerged	
54	½ of inflorescence emerged	
56	¾ of inflorescence emerged	
58	Base of inflorescence just visible	
	Anthesis	
60	Preanthesis	Inflorescence-bearing internode is visible. No anthers are visible.
62	Beginning of anthesis	First anthers appear.
64	Maximum anthesis	Maximum pollen shedding.
66	End of anthesis	No more pollen shedding.
	Seed ripening	
75	Endosperm milky	Inflorescence green.
85	Endosperm soft doughy	No seeds loosening when inflorescence is hit on palm.
87	Endosperm hard doughy	Inflorescence losing chlorophyll; a few seeds loosening when inflorescence hit on palm
91	Endosperm hard	Inflorescence-bearing internode losing chlorophyll; seeds loosening in quantitywhen inflorescence hit on palm.
93	Endosperm hard and dry	Final stage of seed development; most seeds shed.

Source: J. Allan Smith and Virgil W. Hayes. 14th International Grasslands Conference Proc. p. 416-418. June 14-24, 1981, Lexington, Kentucky.

Considerations in Selecting a Summer Annual Variety

The major factor in selecting a variety of summer annual grass is yield, both total and seasonal. Growth after first cutting is strongly dependent on available moisture and nitrogen fertilization. Forage quality is also an important consideration. Tables 48-52 show preliminary quality analyses from the 2020 harvest year for warm season annual grasses in Lexington. Summer annual grasses generally have different characteristics and uses. Pearl millets vary considerably in height and can be used for both pasture and baleage. Pearl millet has the advantage of not producing prussic acid (HCN or cyanide). Forage sorghum, sorghum-sudangrass hybrids, and sudangrass are related grasses (in the sorghum family) and can produce prussic acid immediately after frost or when immature shoots are grazed during severe drought. Sudangrasses are considered to have the least potential for prussic acid poisoning. Sudangrass has smaller, finer stems than sorghum-sudangrass hybrids, which have finer stems than forage sorghums. Consequently, sudangrasses are more easily cured for hay. Pearl millets, sudangrass, sorghum-sudangrass, and teff are typically harvested multiple times during the growing season, but forage sorghum and foxtail millet are harvested only once. For more detailed management recommendations refer to *Warm Season Annual Grasses in Kentucky* (AGR-229) and related publications at http://forages.ca.uky/species.

Considerations in Selecting a Cool Season Cereal Variety

The major factors in selecting cool season cereal grass varieties are yield, winter survival, and regrowth. If cutting a cereal grass for silage or baleage, yield at the first harvest of the season is most important. For all cereals, winter survival is an important factor. Fortunately winter wheat and cereal rye rarely show winterkill in Kentucky regardless of the variety. Winter oats are a marginal crop in Kentucky because severe winterkill usually occurs one out of every two to three years. We have started testing spring planted spring oats and other cereals (tables 38, 39, and 40) to determine which species and which varieties have the best potential as short term cool season forage crops. Spring plantings of winter wheat are not recommended because the lack of vernalization temperatures prevent stem elongation and vigorous spring growth. Consequently, yields are very low with spring planted winter wheat.

Description of the Tests

This report summarizes seventeen warm season annual studies (2019-2021) and ten cool-season annual studies (2018-2021) in Lexington. It also summarizes seventeen warm-season annual studies (2019-2021) in Princeton. The soils at Lexington (Maury) and Princeton (Crider) are well drained silt loams well suited to annual grass production. Plots were 5 feet by 20 feet in a randomized complete block design with four replications with a harvested area of 5 feet by 15 feet. The wheat trial plots were 4 feet by 15 feet with a harvested area of 4 feet by 12 feet. All trials were sown into a prepared seedbed using a disk drill at the following rates (lb/acre): sudangrass (25), sorghum-sudangrass (30), forage sorghum (8),

Table 4. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sudangrass varieties sown May 16, 2019, at Lexington, Kentucky.

Variety	Proprietors/Distributors	Seedling Vigor[1] Jun 3	Percent Stand Jun 3	Maturity[2]				Plant Height (in)				Yield (DM tons/acre)					
				Jun 26	Jul 11	Aug 1	Sep 9	Jun 26	Jul 11	Aug 1	Sep 9	Jun 26	Jul 11	Aug 1	Sep 9	Oct 15	Total
Commercial Varieties-Available for Farm Use																	
Trudan Headless	S&W Seed Company	4.0	92	35.3	33.8	36.0	44.3	31	30	31	41	0.96	1.08	1.24	1.75	0.74	5.77*
AS9302 BMR[3] (Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.3	96	33.0	27.0	35.3	45.8	31	31	31	61	1.00	0.80	1.33	1.51	0.61	5.25*
ProMax BMR	Cisco Seeds	4.5	85	40.5	43.5	39.0	47.3	31	32	32	51	0.77	1.27	1.10	1.42	0.68	5.24*
SS130 BMR	Cal/West Seeds	4.3	90	39.0	39.0	36.8	36.8	31	31	31	42	0.89	1.12	1.05	1.11	0.64	4.81
Piper	Public	4.9	96	45.8	41.3	39.8	41.3	31	31	32	44	1.01	1.20	0.98	0.92	0.68	4.79
Mean		4.4	92	38.7	36.9	37.4	43.1	31	31	31	47	0.92	1.10	1.14	1.34	0.67	5.17
CV,%		10.5	2	8.6	4.6	7.8	6.6	0	3	1	7	15.27	9.28	11.34	6.64	25.74	7.17
LSD,0.05		0.7	2	5.1	2.6	4.5	4.4	0	1	1	5	0.22	0.16	0.20	0.14	0.27	0.57

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 15, 30 lb/A on June 28 and 60 lb/A on Aug 6 (Total of 150 lb of N/acre).

Table 5. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sudangrass varieties sown May 27, 2020, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 8	Aug 5	Sep 4	Jul 8	Aug 5	Sep 4	Jul 8	Aug 5	Sep 4	Oct 7	Total
Commercial Varieties-Available for Farm Use														
AS9302 BMR[3] (Brachytic Dwarf)	Advanta Seed/ Ramer Seed	4.8	100	32.0	31.0	46.3	36	34	35	1.39	1.14	1.25	0.68	4.46*
TrudanHeadless	S&W Seed Company	4.8	99	32.3	33.3	37.3	38	38	36	1.22	1.27	1.29	0.49	4.27*
ProMax BMR	Ampac Seed	4.4	100	32.8	34.5	40.5	41	42	40	1.17	1.24	1.36	0.47	4.23*
SS130 BMR	Cal/West Seeds	4.5	99	35.5	34.8	34.0	44	40	35	1.14	1.31	0.83	0.41	3.69*
Piper	Public	4.6	98	36.0	39.0	33.8	45	44	32	1.10	1.16	0.71	0.35	3.32
Mean		4.6	99	33.7	34.5	38.4	41	39	36	1.21	1.22	1.09	0.48	3.99
CV,%		7.4	2	12.0	10.0	11.7	11	13	8	10.70	19.67	20.09	34.97	12.50
LSD,0.05		0.5	3	6.2	5.4	6.9	7	8	5	0.20	0.37	0.34	0.26	0.77

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on May 29, 40 lb/a on July9 and 60 lb/A on Aug 14 (Total of 150 lb of N/acre).

pearl millet (20), teff (5 for uncoated, 8 for coated), wheat (120), rye (110), oats (80) and triticale (100). Plots were harvested with a sickle-type forage plot harvester. Cutting height was 4 inches for teff and 6 inches for millet, sudangrass, and sorghum-sudangrass. The cool season grasses were cut at a height of 3 inches. The forage sorghum was harvested and with a silage chopper. Fresh weight samples were taken at each harvest to calculate percent dry matter production. All tests were managed for establishment, fertility, pest control, and harvest according to University of Kentucky Cooperative Extension Service recommendations. See table footnotes for specific nitrogen rates used in each trial. Pests were controlled so that they would not limit yield. For example, for weed control in forage sorghum the herbicides atrazine and Dual were used. Forage sorghum seed was treated with Concep to prevent seedling injury from Dual (a pre-emergence herbicide for annual weeds).

Results and Discussion

Weather data for Lexington and Princeton are presented in Tables 1 and 2. Ratings for maturity (see Table 3) and yield data (on a dry-matter basis) are reported in Tables 4 through 47. Quality analyses from the 2020 harvest of warm season annual grasses from Lexington are reported in tables 48-52. Varieties are listed in order from highest to lowest total annual production. Yields are given by cutting and as a total for the year. Statistical analyses were performed on all yield data to determine if the apparent differences are truly due to variety or just due to chance. To determine if two varieties are truly different, compare the difference between the two varieties to the least significant difference (LSD) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different when grown under the conditions at a given location. The coefficient of variation (CV), a measure of the variability of the data, is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

How to Interpret the Summary Tables

Summaries of yield data from 2008 to 2021 of commercial varieties are presented in tables 53 through 59. The value for each variety in these tables is listed as a percentage of the mean of the commercial varieties entered in each specific trial. Varieties with percentages over 100 yielded better than average, and varieties with percentages less than 100 yielded lower than average. Direct, statistical comparisons of varieties cannot be made using the summary tables 53 through 59, but the data can help identify varieties for further consideration. Varieties that have performed better than average over many years and at several locations have very stable performance in comparison to varieties that have only been tested at one location or for one year.

Summary

Warm and cool season annual grasses can be an important supplemental source of pasture, hay, and silage in Kentucky. Varieties should be selected for their seasonal and total yield characteristics and for their suitability for the method of harvest to be employed (pasture, hay, or silage). Make sure seed of the chosen variety is properly labeled and will be available when needed.

For more information, consult the following University of Kentucky Cooperative Extension publications related to annual grass management. These resources are available from your county Extension office may be accessed in the Publications section of the UK Forage website at http://forages.ca.uky.edu.

- Lime and Fertilizer Recommendations (AGR-1)
- Grain and Forage Crop Guide for Kentucky (AGR-18)
- Establishing Forage Crops (AGR-64)
- Warm Season Annual Grasses in Kentucky (AGR-229)

Table 6. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sudangrass varieties sown May 19, 2021, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 9	Percent Stand Jun 9	Maturity[2]					Plant Height (in)					Yield (DM tons/acre)						
				Jun 25	Jul 9	Jul 29	Aug 23	Oct 1	Jun 25	Jul 9	Jul 29	Aug 23	Oct 1	Jun 25	Jul 9	Jul 29	Aug 23	Oct 1	Nov 1	Total
Commercial Varieties-Available for Farm Use																				
TrudanHeadless	S&W Seed Company	4.1	100	31.3	31.5	31.3	28.0	35.8	34	31	40	37	37	1.19	1.38	1.52	1.39	1.22	0.50	7.21*
ProMax BMR[3]	Cisco Seeds	4.1	99	32.0	31.3	31.8	30.5	48.8	38	33	47	47	42	1.19	1.17	1.62	1.62	1.07	0.45	7.12*
SS130 BMR	Cal/West Seeds	4.1	100	32.0	31.5	31.8	32.0	35.8	38	35	44	41	31	1.36	1.32	1.78	1.37	0.59	0.26	6.68*
AS9302 BMR (Brachytic Dwarf)	Advanta Seeds/ Ramer Seed	3.6	100	31.0	31.5	31.0	30.5	49.8	31	33	36	35	35	0.99	1.09	1.41	1.29	1.19	0.63	6.60*
SP7106 BMR	Sorghum Partners	4.4	100	31.0	31.5	31.0	28.3	34.0	29	34	34	33	29	1.22	1.20	1.20	1.16	0.95	0.41	6.14
Piper	Public	4.3	100	32.0	31.5	32.0	32.3	35.8	39	38	47	44	32	1.30	1.14	1.61	1.18	0.64	0.26	6.12
Mean		4.1	100	31.5	31.5	31.5	30.3	40	35	34	41	40	34	1.21	1.22	1.52	1.34	0.94	0.42	6.64
CV,%		20.8	1	0.6	1.9	1.2	6.9	10.6	14	15	6	6	9	34.57	22.16	19.91	14.19	18.23	15.31	9.13
LSD,0.05		1.3	1	0.3	0.9	0.6	3.1	6.4	7	8	3	4	5	0.63	0.41	0.46	0.29	0.26	0.10	0.91

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/ A of actual nitrogen on May 23 and June 30 (Total of 120 lb of N/acre).

Table 7. Dry matter yields, stand rating, maturity, and plant height of sudangrass varieties sown May 29, 2019, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Percent Stand Jun 27	Maturity[1] Jun 27	Plant Height (in)			Yield (DM tons/acre)				
				Jun 27	Jul 25	Aug 29	Jul 1	Jul 26	Aug 29	Nov 4	Total
Commercial Varieties-Available for Farm Use											
AS9302 BMR[2] (Brachytic Dwarf)	Advanta Seed/Ramer Seed	93	34.0	33	41	49	1.81	3.00	1.23	1.42	7.46*
Trudan Headless	S&W Seed Company	94	34.0	35	48	53	1.88	2.47	1.45	1.57	7.37*
SS130 BMR	Cal/West Seeds	95	35.5	40	55	50	1.73	2.50	1.09	1.00	6.32*
Piper	Public	96	34.8	40	54	52	1.66	2.50	0.98	0.55	5.69
ProMax BMR	Cisco Seeds	94	34.5	39	56	57	1.58	2.42	0.94	0.74	5.68
Mean		94	34.6	37	51	52	1.73	2.58	1.14	1.06	6.50
CV,%		3	3.0	5	6	6	12.65	20.88	10.68	31.43	13.03
LSD,0.05		4	1.6	3	5	5	0.34	0.83	0.19	0.51	1.31

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 22 and 60 lb/A of actual nitrogen on July 10 and July 29 (Total of 180 lb of N/acre).

Table 8. Dry matter yields, maturity, and plant height of sudangrass varieties sown June 2, 2020, at Princeton, Kentucky.

Variety	Proprietor/ Distibutor	Maturity[1] Jul 10	Plant Height (in)		Yield (DM tons/acre)			
			Jul 10	Aug 6	Jul 10	Aug 6	Sep 11	Total
Commercial Varieties-Available for Farm Use								
Trudan Headless	S&W Seed Company	31.8	47	40	1.75	1.44	1.47	4.59*
AS9302 BMR[2] (Brachytic Dwarf)	Advanta Seed/ Ramer Seed	31.8	41	38	1.62	1.28	1.21	4.11*
SS130 BMR	Cal/West Seeds	33.0	51	47	1.22	1.55	0.94	3.61
ProMax BMR	Ampac Seed	32.8	56	49	1.16	1.27	0.69	3.13
Piper	Public	32.8	55	46	1.32	1.06	0.58	2.96
Mean		32.4	50	44	1.41	1.32	0.98	3.63
CV,%		1.8	4	7	17.90	20.27	17.58	10.86
LSD,0.05		0.9	3	5	0.39	0.44	0.28	0.66

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on June 1, July 23, and August 13 (Total of 180 lb of N/acre).

Table 9. Dry matter yields, stand rating, maturity, and plant height of sudangrass varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Percent Stand Jun 28	Maturity[1] Jul 21	Plant Height (in)			Yield (DM tons/acre)				
				Jun 29	Jul21	Aug 19	Jun 29	Jul 21	Aug 19	Sep 30	Total
Commercial Varieties-Available for Farm Use											
TrudanHeadless	S&W Seed Company	100	36.3	33	39	49	1.17	1.47	1.76	0.72	5.13
ProMax BMR[2]	Cisco Seeds	100	40.0	36	49	56	1.09	1.40	1.32	1.16	4.97
AS9302 BMR (Brachytic Dwarf)	Advanta Seeds/ Ramer Seed	100	35.0	29	32	42	1.08	1.15	1.45	1.18	4.87
Piper	Public	100	40.0	37	49	52	1.07	1.31	1.29	0.88	4.56
SS130 BMR	Cal/West Seeds	100	38.8	35	47	47	1.04	1.34	1.02	0.95	4.35
SP7106 BMR	Sorghum Partners	100	36.8	25	36	39	0.84	1.19	1.31	0.84	4.18
Mean		100	37.8	33	42	47	1.05	1.31	1.36	0.96	4.67
CV,%		0	4.9	4	7	6	8.88	7.69	13.65	22.84	7.46
LSD,0.05		0	2.8	2	4	4	0.14	0.15	0.28	0.33	0.53

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 27, June 29 and July 30 (Total of 180 lb of N/acre).

- Sudangrass and Sorghum-sudangrass Hybrids (AGR-234)
- Pearl Millet (AGR-231)
- Forage Sorghum (AGR-230)
- Crabgrass (AGR-232)
- Extending Grazing and Reducing Stored Feed Needs (AGR-199)
- Managing Small Grains for Livestock Forage (AGR-160)
- Growing Wheat for Forage (AGR-263)

About the Authors

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Table 10. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 17, 2019, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 3	Percent Stand Jun 3	Maturity[2]				Plant Height (in)				Yield (DM tons/acre)					
				Jun 26	Jul 16	Aug 5	Sep 9	Jun 26	Jul 16	Aug 5	Sep 9	Jun 26	Jul 16	Aug 5	Sep 9	Oct 15	Total
Commercial Varieties-Available for Farm Use																	
HyGain	Turner Seed	4.4	97	47.3	35.3	38.3	50.3	28	31	32	53	1.77	1.10	1.26	2.08	0.65	6.87*
Super Sweet10	Dyna-Gro Seeds	4.3	100	42.8	32.3	36.8	46.5	27	31	32	53	1.79	1.04	1.30	2.06	0.68	6.87*
NutraKing BMR[3]	Public	4.8	100	43.5	29.3	34.5	44.3	27	28	32	52	1.98	0.96	1.32	1.82	0.61	6.67*
Danny Boy II BMR	Dyna-Gro Seeds	3.5	98	36.0	30.0	33.0	43.5	27	29	32	35	1.38	1.17	1.24	2.14	0.72	6.65*
SugarGraze II	Coffey Seed	4.6	98	43.5	36.0	38.3	48.0	28	31	32	52	1.64	1.14	1.14	1.76	0.57	6.25*
Fullgraze II	Dyna-Gro Seeds	3.9	99	42.8	30.0	37.5	39.0	27	29	31	35	1.62	0.59	1.41	1.59	0.48	5.69
Fullgraze II BMR	Dyna-Gro Seeds	4.4	99	39.0	27.8	33.0	37.5	27	29	32	32	1.37	0.79	1.07	1.74	0.53	5.49
F75FS13	Dyna-Gro Seeds	4.1	98	36.0	30.0	33.0	39.0	27	30	35	55	1.47	0.81	1.15	1.43	0.44	5.31
AS6401 BMR	Advanta Seed/Ramer Seed	3.5	97	33.8	28.5	32.3	39.0	27	28	32	43	0.91	0.78	0.90	1.67	0.49	4.76
Xtragraze BMR	Coffey Seed	4.5	95	36.8	28.5	35.3	41.3	27	30	32	48	1.12	0.63	0.96	1.11	0.66	4.48
Surpass BMR	Turner Seed	3.8	93	30.0	30.8	27.8	36.8	27	34	33	54	0.86	0.85	0.79	1.27	0.49	4.26
AS6402 BMR (Brachytic Dwarf)	Advanta Seed	4.0	98	30.0	30.8	24.0	34.5	27	31	30	52	0.71	0.95	0.61	1.06	0.46	3.79
Experimental Varieties																	
18552	Gayland Ward Seed	4.8	100	53.3	34.5	37.5	55.5	28	30	32	51	1.98	1.10	1.28	2.10	0.77	7.24*
18182 BMR	Gayland Ward Seed	4.8	99	45.8	31.5	35.3	50.3	28	29	32	53	1.89	0.86	1.30	1.97	0.52	6.53*
ADVXS007 BMR	Advanta Seed/Ramer Seed	3.1	96	34.5	30.8	31.5	38.3	27	30	32	45	1.30	1.19	1.09	2.05	0.69	6.31*
19154	Gayland Ward Seed	3.6	98	41.3	32.3	34.5	51.8	27	31	32	32	1.42	0.86	0.97	1.77	0.63	5.65
19102	Gayland Ward Seed	4.4	99	36.8	33.0	30.8	44.3	27	29	31	32	1.44	1.03	0.79	1.79	0.56	5.62
18180	Gayland Ward Seed	4.6	100	39.0	30.8	33.8	42.0	27	29	32	35	1.29	0.87	0.97	1.62	0.54	5.30
19153	Gayland Ward Seed	4.1	100	36.8	33.0	31.5	47.3	27	29	32	34	1.26	0.89	0.87	1.59	0.51	5.14
18181 BMR	Gayland Ward Seed	3.8	97	37.5	28.5	36.0	34.5	27	29	32	32	1.35	0.70	1.10	1.26	0.47	4.89
ADVXS8007 BMR	Advanta Seed/Ramer Seed	4.1	99	33.0	30.0	28.5	39.8	27	30	32	52	1.06	1.04	0.81	1.38	0.49	4.77
ADVXS008 BMR	Advanta Seed/Ramer Seed	3.0	98	28.5	29.3	25.5	33.0	26	30	32	38	0.92	0.99	0.66	1.30	0.60	4.47
3618 BMR	Coffey Seed	3.3	92	27.8	31.5	21.0	33.0	26	28	31	50	0.85	0.93	0.67	1.17	0.36	3.99
5618 BMR	Coffey Seed	3.4	93	27.0	32.3	18.0	33.0	26	31	31	56	0.63	1.07	0.36	1.26	0.49	3.81
3619 BMR	Coffey Seed	2.8	73	28.5	29.3	24.8	35.3	27	49	41	58	0.66	0.69	0.59	1.04	0.49	3.47
5619 BMR	Coffey Seed	2.6	59	25.5	34.5	28.5	42.8	26	50	36	58	0.31	0.93	0.37	0.96	0.39	2.96
Mean		3.9	95	36.8	31.2	31.6	41.5	27	31	32	46	1.27	0.92	0.96	1.58	0.55	5.28
CV,%		15.0	11	13.1	11.3	12.9	13.2	2	9	10	12	33.66	28.75	36.37	20.52	29.52	17.64
LSD,0.05		0.8	14	6.8	5.0	8.0	7.2	1	4	5	8	0.60	0.37	0.49	0.46	0.23	1.31

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 15, 30 lb/A on June 28 and 60 lb/A on Aug 6 (Total of 150 lb of N/acre).

Table 11. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 27, 2020, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 8	Aug 5	Sep 4	Jul 8	Aug 5	Sep 4	Jul 8	Aug 5	Sep 4	Oct 7	Total
Commercial Varieties-Available for Farm Use														
Sordan 79	S&W Seed Company	4.8	100	32.0	39.0	43.5	41	47	46	1.17	1.53	1.84	0.59	5.14*
SugarGraze II	Coffey Seed	4.8	99	32.3	36.0	43.5	42	44	41	1.22	1.64	1.70	0.54	5.10*
HyGain	Turner Seed	5.0	98	32.5	37.0	43.5	44	47	45	1.14	1.60	1.79	0.55	5.08*
Sordan Headless	S&W Seed Company	4.6	100	30.8	33.8	34.5	33	41	38	1.07	1.56	1.70	0.60	4.92*
FirstGraze	Dyna-Gro Seeds	4.9	100	32.8	39.0	45.0	44	45	44	1.18	1.48	1.67	0.57	4.89*
AS6401 BMR[3]	Advanta Seed/Ramer Seed	4.9	99	30.8	35.3	39.0	34	40	39	1.05	1.63	1.75	0.40	4.82*
Super Sweet 10	Dyna-Gro Seeds	4.9	100	31.5	33.5	45.0	40	41	40	1.04	1.39	1.66	0.65	4.74*
FullGraze II	Dyna-Gro Seeds	4.6	100	32.0	33.5	39.0	40	39	42	1.18	1.36	1.66	0.49	4.70*
NutraKing BMR	Public	4.8	99	31.8	36.0	42.0	40	40	36	1.31	1.43	1.49	0.41	4.64*
F75FS13	Dyna-Gro Seeds	4.9	100	30.8	36.8	45.0	35	38	37	1.27	1.25	1.40	0.55	4.47
DynaGraze II	Dyna-Gro Seeds	4.6	94	32.3	36.0	40.5	40	44	43	0.96	1.40	1.51	0.53	4.40
Danny Boy II BMR	Dyna-Gro Seeds	4.0	97	32.0	35.3	36.0	32	44	35	0.73	1.63	1.36	0.53	4.25
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.8	97	30.0	31.0	37.3	32	33	33	1.00	1.30	1.38	0.55	4.24
SP 4105 BMR	Sorghum Partners	4.5	100	29.5	27.8	32.5	26	35	32	0.80	1.44	1.43	0.42	4.09
FullGraze II BMR	Dyna-Gro Seeds	4.5	98	30.0	33.8	39.0	35	38	38	0.83	1.29	1.47	0.45	4.03
SP 7106 BMR	Sorghum Partners	4.6	100	29.0	31.0	35.8	26	32	32	0.85	1.14	1.38	0.66	4.02
Xtragraze BMR	Coffey Seed	4.6	98	31.5	31.0	43.5	38	35	37	1.14	0.94	1.23	0.35	3.66
Surpass BMR	Turner Seed	4.3	97	30.8	33.3	45.0	32	35	35	0.89	0.91	1.26	0.55	3.62
Mean		4.7	99	31.2	34.4	40.5	36	40	39	1.05	1.38	1.54	0.52	4.49
CV,%		8.7	2	4.1	9.7	7.2	8	5	8	20.49	11.70	13.96	35.15	9.96
LSD,0.05		0.6	3	1.8	4.8	4.2	4	3	4	0.30	0.23	0.30	0.26	0.64

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on May 29, 40 lb/A onJuly 9 and 60 lb/A on Aug 14 (Total of 150 lb of N/acre).

Table 12. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 19, 2021, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 9	Percent Stand Jun 9	Maturity[2]				Plant Height (in)				Yield (DM tons/acre)					
				Jun 30	Jul 16	Aug 17	Sep 24	Jun 30	Jul 16	Aug 17	Sep 24	Jun 30	Jul 16	Aug 17	Sep 24	Nov 1	Total
Commercial Varieties-Available for Farm Use																	
Super Sweet 10	Dyna-Gro Seeds	3.9	100	29.0	30.0	41.8	47.5	31	33	44	37	0.91	1.41	2.65	1.66	0.56	7.18*
SP4555BMR	Sorghum Partners	4.8	100	29.5	29.0	45.0	45.0	37	29	45	38	1.28	1.34	2.53	1.43	0.56	7.16*
SugarGraze II	Coffey Seed	3.5	98	29.0	31.5	45.0	46.3	30	41	47	47	0.69	1.77	2.20	1.92	0.57	7.15*
Sordan 79	S&W Seed Company	4.4	100	29.5	30.5	46.3	41.8	37	34	52	41	1.14	1.35	2.33	1.62	0.70	7.14*
HyGain	Turner Seed	2.9	93	29.0	31.5	45.0	45.0	29	42	50	45	0.57	1.59	2.26	1.80	0.66	6.89*
NutraKing BMR[3]	Public	4.0	99	29.0	30.5	45.0	43.0	30	38	42	38	0.98	1.57	2.08	1.59	0.52	6.76*
AS6401BMR	Advanta Seed/Ramer Seed	3.0	96	29.0	31.0	38.0	35.0	29	38	41	41	0.79	1.60	2.37	1.44	0.38	6.58*
DynaGraze II	Dyna-Gro Seed	3.6	100	29.0	31.3	45.0	46.3	32	38	46	41	0.70	1.68	2.05	1.53	0.44	6.39
SordanHeadless	S&W Seed Company	4.4	100	29.0	29.8	30.5	31.3	34	30	42	35	1.15	1.33	1.88	1.47	0.48	6.32
FirstGraze	Dyna-Gro Seed	4.0	100	29.5	29.5	45.0	41.5	35	32	45	38	0.98	1.36	2.06	1.38	0.45	6.23
FullGraze II	Dyna-Gro Seed	4.0	99	29.0	31.0	33.5	35.0	33	38	41	38	1.02	1.45	1.72	1.49	0.50	6.17
SWSU0029	S&W Seed Company	4.1	100	29.5	30.0	45.0	45.0	35	32	47	38	1.07	1.02	1.98	1.38	0.56	6.01
Sweet Six BMR (Dry Stalk)	Gayland Ward Seed	3.8	99	29.0	30.0	47.5	47.5	33	32	44	35	0.89	1.30	2.06	1.31	0.44	6.01
FullGraze II BMR	Dyna-Gro Seed	4.1	100	29.0	30.0	40.0	35.3	29	35	38	38	0.71	1.43	1.68	1.56	0.51	5.89
AS6504 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	2.9	97	29.0	30.8	31.3	31.8	29	39	38	37	0.63	1.34	2.05	1.44	0.39	5.85
F75FS13	Dyna-Gro Seed	3.6	100	29.0	30.3	46.3	48.8	31	37	33	39	0.89	1.68	1.28	1.52	0.34	5.71
DannyBoy II BMR	Dyna-Gro Seed	3.5	98	29.0	31.3	31.5	35.0	29	38	36	36	0.69	1.50	1.75	1.42	0.35	5.70
SWSB8801	S&W Seed Company	4.6	100	29.5	29.0	47.5	44.3	34	29	41	32	1.22	1.18	1.81	0.97	0.34	5.52
SP 4105 BMR	Sorghum Partners	4.8	100	29.0	30.0	29.0	31.3	29	32	34	32	0.91	1.41	1.65	1.20	0.27	5.43
Surpass BMR	Turner Seed	3.6	97	29.0	29.5	49.8	47.5	26	32	32	39	0.58	1.44	1.50	1.23	0.38	5.13
XtraGraze BMR	Coffey Seed	3.5	97	29.0	31.3	33.5	46.3	27	36	32	44	0.60	1.50	1.26	1.29	0.38	5.03
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	3.0	92	29.0	29.5	48.8	38.0	25	33	34	32	0.58	1.26	1.41	1.20	0.42	4.87
Mean		3.8	98	29.1	30.3	41.4	41.3	31	35	41	38	0.86	1.43	1.93	1.45	0.46	6.14
CV,%		11.5	1	1.7	3.0	9.5	12.0	11	17	9	13	27.55	18.17	16.21	9.85	21.88	8.69
LSD,0.05		0.6	2	0.7	1.3	5.6	7.0	5	5	5	7	0.34	0.37	0.44	0.20	0.14	0.75

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on May 21 and June 30 (Total of 120 lb of N/acre).

Table 13. Dry matter yields, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 29, 2019, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Percent Stand Jun 20	Maturity[1] Jul 26	Plant Height (in)			Yield (DM tons/acre)				
				Jul 1	Jul 26	Aug 29	Jul 1	Jul 26	Aug 29	Nov 5	Total
Commercial Varieties-Available for Farm Use											
HyGain	Turner Seed	84	34.5	32	54	65	1.36	2.82	3.25	2.70	10.13*
Super Sweet 10	Dyna-Gro Seed	95	33.8	30	43	61	1.72	1.95	3.14	3.06	9.86*
AS6401 BMR[2]	Advanta Seed/Ramer Seed	88	33.5	29	43	59	1.48	2.68	3.37	1.80	9.34*
Danny Boy I I BMR	Dyna-Gro Seed	90	34.3	28	39	52	1.40	2.43	3.40	1.96	9.20*
SugarGraze II	Coffey Seed	88	33.8	30	51	62	1.39	1.97	3.37	2.44	9.17*
Fullgraze II	Dyna-Gro Seed	91	33.8	29	45	60	1.36	2.20	3.93	1.56	9.06*
Fullgraze II BMR	Dyna-Gro Seed	91	33.8	28	38	55	1.56	2.13	3.68	1.52	8.90
NutraKing BMR	Public	92	33.0	31	44	54	1.88	2.58	2.80	1.51	8.78
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	83	33.5	25	35	45	1.31	2.06	2.59	1.65	7.61
F75FS13	Dyna-Gro Seed	89	33.8	28	37	52	1.36	1.31	2.68	1.00	6.34
Surpass BMR	Turner Seed	86	33.8	23	36	44	1.25	1.70	2.12	1.11	6.19
Xtragraze BMR	Coffey Seed	85	33.8	27	34	54	1.38	1.18	1.95	1.36	5.88
Experimental Varieties											
18552	Gayland Ward Seed	94	34.3	37	49	63	1.88	2.07	3.15	3.14	10.24*
18180	Gayland Ward Seed	88	34.0	30	41	60	1.74	1.95	3.85	2.04	9.59*
19153	Gayland Ward Seed	94	34.0	30	41	57	1.80	2.18	3.54	1.53	9.06*
ADVXS007 BMR	Advanta Seed/Ramer Seed	85	33.8	24	44	57	1.36	2.37	3.26	1.66	8.65
19154	Gayland Ward Seed	85	34.0	29	47	62	1.47	1.81	3.26	1.70	8.25
ADVXS008 BMR	Advanta Seed/Ramer Seed	90	34.0	22	36	46	1.40	2.05	3.00	1.68	8.13
ADVXS8007 BMR	Advanta Seed/Ramer Seed	91	34.0	28	39	54	1.53	1.72	2.90	1.93	8.07
19102	Gayland Ward Seed	94	33.5	27	40	53	1.63	1.75	3.16	1.39	7.93
18182 BMR	Gayland Ward Seed	93	33.8	32	43	58	1.76	1.42	2.56	1.97	7.71
18181 BMR	Gayland Ward Seed	90	33.8	29	34	58	1.67	1.48	3.00	0.81	6.96
5619BMR	Coffey Seed	84	38.0	23	32	40	1.42	1.48	1.69	1.34	5.93
5618 BMR	Coffey Seed	84	33.3	24	33	40	1.19	1.93	1.45	0.91	5.48
3619 BMR	Coffey Seed	85	39.3	23	32	36	1.00	1.66	1.62	1.05	5.33
3618 BMR	Coffey Seed	84	33.0	21	34	36	1.01	1.56	1.42	0.68	4.67
Mean		88	34.1	28	40	53	1.47	1.94	2.85	1.67	7.94
CV,%		4	5.5	9	12	7	17.82	23.91	16.29	36.69	11.69
LSD,0.05		5	2.7	3	7	5	0.37	0.65	0.65	0.87	1.31

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.

[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Nitrogen application: 60 lb/A of actual nitrogen on May 22 and 60 lb/A of actual nitrogen on July 10 and July 29 (Total of 180 lb of N/acre).

Table 14. Dry matter yields, maturity, and plant height of sorghum-sudangrass varieties sown June 2, 2020, at Princeton, Kentucky.

Variety	Proprietor/Distibutor	Maturity[1] Jul 10	Plant Height (in)		Yield (DM tons/acre)			
			Jul 10	Aug 4	Jul 10	Aug 4	Sep 11	Total
Commercial Varieties-Available for Farm Use								
Super Sweet 10	Dyna-Gro Seeds	31.3	52	50	1.31	1.52	2.22	5.05*
Sordan 79	S&W Seed Company	31.3	52	53	1.31	1.79	1.77	4.87*
DynaGraze II	Dyna-Gro Seeds	31.8	57	55	1.02	1.71	2.07	4.80*
SugarGraze II	Coffey Seed	30.8	52	54	1.04	1.78	1.98	4.80*
FirstGraze	Dyna-Gro Seeds	31.5	51	52	1.14	1.71	1.82	4.67*
HyGain	Turner Seed	31.5	57	52	1.23	1.57	1.54	4.35
AS6401 BMR[2]	Advanta Seed/Ramer Seed	29.0	40	50	0.90	1.59	1.68	4.17
Sordan Headless	S&W Seed Company	29.0	42	47	1.11	1.48	1.61	4.03
DannyBoy II BMR	Dyna-Gro Seeds	29.0	36	50	0.71	1.64	1.54	3.89
NutraKing BMR	Public	29.5	44	49	0.93	1.34	1.52	3.79
F75FS13	Dyna-Gro Seeds	29.0	41	42	1.02	1.34	1.34	3.71
FullGraze II	Dyna-Gro Seeds	29.0	41	51	0.77	1.45	1.49	3.71
FullGraze II BMR	Dyna-Gro Seeds	30.0	39	44	0.83	1.47	1.34	3.64
SP7106 BMR	Sorghum Partners	29.5	34	32	1.04	1.17	1.39	3.60
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	29.0	32	45	0.57	1.64	1.14	3.34
SP4105 BMR	Sorghum Partners	29.0	32	39	0.88	1.22	1.03	3.14
Xtragraze BMR	Coffey Seed	29.5	40	46	0.74	1.28	0.93	2.95
Surpass BMR	Turner Seed	29.0	32	41	0.54	1.27	0.98	2.78
Mean		25.9	43	47	0.95	1.49	1.52	3.95
CV,%		2.0	8	8	17.97	13.94	16.80	10.29
LSD,0.05		0.9	5	5	0.24	0.30	0.36	0.59

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on June 1, July 23, and August 13 (Total of 180 lb of N/acre).

Table 15. Dry matter yields, stand rating, maturity, and plant height of sorghum sudangrass varieties sown May 25, 2021, at Princeton, Kentucky.

		Percent Stand		Maturity[1]	Plant Height (in)				Yield (DM tons/acre)				
Variety	Proprietor/Distributor	Jun 28	Sep 27	Jul 22	Jun 28	Jul 22	Aug 18	Sep 27	Jun 29	Jul 22	Aug 18	Sep 30	Total
Commercial Varieties-Available for Farm Use													
SWSU0029	S&W Seed Company	100	91	35.0	36	42	48	38	1.02	1.58	1.84	1.60	6.04*
SugarGraze II	Coffey Seed	100	89	36.8	35	43	49	35	0.96	1.68	1.94	1.46	6.03*
SuperSweet 10	Dyna-Gro Seeds	100	89	35.5	33	40	48	35	0.88	1.58	1.91	1.51	5.87*
FirstGraze	Dyna-Gro Seeds	100	90	35.8	35	43	45	39	0.99	1.47	1.71	1.67	5.84*
HyGain	Turner Seed	100	90	39.5	34	48	53	36	0.79	1.79	1.84	1.38	5.80*
AS6504 BMR[2] (Brachytic Dwarf)	Advanta Seed/Ramer Seed	100	76	35.5	31	42	44	32	0.89	1.83	1.64	1.33	5.69*
Sordan79	S&W Seed Company	100	64	36.3	38	44	48	29	1.14	1.55	1.93	1.05	5.67*
FullGraze II	Dyna-Gro Seeds	100	86	35.0	33	37	44	36	0.98	1.48	1.34	1.60	5.40*
DynaGraze II	Dyna-Gro Seeds	100	80	35.5	35	40	46	33	0.93	1.55	1.73	1.18	5.39*
FullGraze II BMR	Dyna-Gro Seeds	100	85	35.0	30	40	41	34	0.80	1.50	1.46	1.52	5.28
SordanHeadless	S&W Seed Company	100	76	36.8	31	43	41	35	0.98	1.57	1.53	1.10	5.19
SP4555BMR	Sorghum Partners	100	79	35.0	33	35	41	29	1.03	1.37	1.58	1.08	5.06
DannyBoy II BMR	Dyna-Gro Seeds	100	75	35.8	31	43	38	32	0.85	1.55	1.44	1.22	5.06
NutraKing BMR	Public	100	71	35.8	34	42	45	30	1.00	1.48	1.57	1.00	5.04
Sweet Six BMR (Dry Stalk)	Gayland Ward Seed	100	75	35.5	33	40	42	32	0.99	1.39	1.42	1.05	4.84
F75FS13	Dyna-Gro Seeds	100	88	35.0	31	40	40	31	0.81	1.34	1.34	1.14	4.63
XtraGraze BMR	Coffey Seed	100	63	35.0	32	38	41	26	0.88	1.31	1.18	1.01	4.37
Surpass BMR	Turner Seed	100	86	35.0	29	40	33	30	0.71	1.37	1.11	1.12	4.32
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	100	55	35.0	28	39	35	24	0.80	1.41	1.22	0.77	4.20
SP4105 BMR	Sorghum Partners	100	25	35.0	27	35	34	22	0.98	1.36	1.24	0.35	3.93
Mean		100	77	35.7	32	41	43	32	0.92	1.51	1.55	1.21	5.18
CV,%		0	27	3.2	6	8	11	19	14.97	11.63	11.12	32.04	9.96
LSD,0.05		0	29	1.6	3	5	7	9	0.20	0.25	0.24	0.55	0.73

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.

[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Nitrogen application: 60 lb/acre of actual nitrogen on May 27, June 29 and July 30 (Total of 180 lb of N/acre).

Table 16. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of pearl millet varieties sown May 16, 2019, at Lexington, Kentucky.

Variety	Proprietor/Distibutor	Seedling Vigor[1] Jun 3	Percent Stand Jun 3	Maturity[2]				Plant Height (in)				Yield (DM tons/acre)					
				Jul 3	Jul 16	Aug 14	Sep 20	Jul 3	Jul 16	Aug 14	Sep 20	Jul 3	Jul 16	Aug 14	Sep 20	Oct 14	Total
Commercial Varieties-Available for Farm Use																	
Tifleaf III Hybrid	Gayland Ward Seed	4.4	94	28.0	29.5	60.5	62.0	33	28	36	32	1.21	0.77	1.41	0.54	0.43	4.36*
SS635	Southern States	4.5	95	27.8	30.8	56.0	62.0	35	32	38	32	1.29	0.69	1.47	0.44	0.34	4.22*
Leafy22 Hybrid	Turner Seed	4.4	91	28.3	31.0	58.5	62.0	32	32	36	32	0.93	0.65	1.65	0.59	0.39	4.20*
SS1562M BMR[3]	Southern States	3.8	95	27.0	27.0	40.8	58.0	29	25	26	19	1.06	0.77	1.47	0.41	0.31	4.02*
PearlMil	DynaGro	3.6	79	27.5	31.5	59.5	62.0	32	34	41	35	0.95	0.66	1.54	0.60	0.26	4.00*
Pennleaf Hybrid	Pennington Seed	3.0	73	26.8	29.3	58.0	62.0	29	29	34	29	1.00	0.67	1.41	0.52	0.27	3.88*
Wonderleaf	Alta Seed/Ramer Seed	3.9	80	34.3	29.5	61.0	62.0	41	29	48	31	1.30	0.63	1.23	0.44	0.23	3.83*
PP102M Hybrid	Cisco Seed	3.3	70	43.3	33.8	62.0	61.0	41	29	45	29	1.20	0.62	1.41	0.37	0.20	3.79*
Epic BMR	Coffey Seed	3.8	86	26.8	27.3	37.3	61.0	27	24	25	21	0.84	0.77	1.54	0.27	0.35	3.77*
SweetSummer	Cisco Seed	3.9	91	27.5	28.5	34.5	60.5	31	26	25	20	0.96	0.77	1.42	0.36	0.21	3.72
Prime360	Byron Seed	3.1	80	27.0	27.5	42.3	61.0	28	26	26	20	0.83	0.68	1.31	0.42	0.29	3.53
Exceed BMR	Coffey Seed	3.4	83	27.0	27.8	41.3	62.0	29	26	26	24	0.89	0.71	1.08	0.38	0.39	3.45
Experimental Varieties																	
18183	Gayland Ward Seed	5.0	98	27.0	29.5	62.0	62.0	34	29	38	32	1.20	0.65	1.59	0.61	0.39	4.43*
LeafyTR-9	Coffey Seed	3.5	79	27.5	29.3	49.8	62.0	32	29	33	28	0.90	0.76	1.29	0.68	0.55	4.18*
LeafyTR-7	Coffey Seed	3.8	88	27.3	29.0	55.0	61.5	31	27	32	26	0.93	0.68	1.47	0.32	0.44	3.84*
Mean		3.8	85	28.9	29.4	51.9	61.4	32	28	34	27	1.03	0.70	1.42	0.46	0.34	3.95
CV,%		13.2	11	10.0	8.5	14.4	1.7	8	9	7	12	20.19	21.23	16.86	31.58	38.38	11.79
LSD,0.05		0.7	13	4.1	3.6	10.7	1.5	4	4	4	5	0.30	0.21	0.34	0.21	0.18	0.66

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 16 and 30 lb/A of actual nitrogen on July 3 (Total of 90 lb of N/acre).

Table 17. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of pearl millet varieties sown May 27, 2020, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 17	Aug 11	Sep 4	Jul 17	Aug 11	Sep 4	Jul 17	Aug 11	Sep 4	Oct 6	Total
Commercial Varieties-Available for Farm Use														
Leafy22 Hybrid	Turner Seed	4.8	99	21.5	55.5	54.5	28	41	29	0.96	1.77	1.07	1.03	4.82*
PearlMil	Dyna-Gro Seeds	4.8	98	22.0	56.0	54.5	29	41	34	1.05	1.68	1.02	1.03	4.78*
Millex32	S&W Seed Company	5.0	100	39.8	49.3	56.5	45	37	39	1.44	1.26	0.94	1.06	4.69*
SS635	Southern States	4.1	92	21.3	55.5	56.0	26	42	34	0.97	1.37	1.10	1.04	4.48*
Exceed BMR[3]	Coffey Seed	5.0	100	18.5	52.3	55.0	27	31	29	1.01	1.43	0.90	1.02	4.36*
Wonderleaf	Advanta Seed/Ramer Seed	4.9	98	42.0	46.3	54.5	37	39	38	1.42	1.13	0.78	0.89	4.23
SweetSummer	Cisco Seeds	4.6	100	18.8	49.3	56.5	27	28	26	1.12	1.27	0.74	0.99	4.12
Pennleaf Hybrid	Pennington Seed	4.0	94	28.3	58.5	55.5	29	40	30	0.80	1.51	0.70	1.03	4.04
Tifleaf III Hybrid	Gayland Ward Seed	4.5	100	25.0	55.0	55.0	27	35	30	0.85	1.36	0.93	0.90	4.03
SS1562M BMR	Southern States	4.4	99	17.8	42.0	54.5	25	29	27	0.88	1.20	0.90	1.01	3.99
Epic BMR	Coffey Seed	3.8	98	17.8	47.0	54.5	25	30	26	0.62	1.32	1.02	1.00	3.97
PP102M Hybrid	Cisco Seeds	4.6	98	45.0	55.5	54.0	35	36	38	1.18	1.12	0.82	0.77	3.89
Prime360	Byron Seed	4.0	92	18.5	51.5	53.0	26	32	26	0.91	1.14	0.70	1.08	3.83
Experimental Varieties														
LeafyTR7	Coffey Seed	3.9	98	19.0	52.8	55.0	29	38	32	1.02	1.63	1.07	1.22	4.93*
18183	Gayland Ward Seed	5.0	100	22.0	54.5	55.0	30	38	28	1.02	1.53	1.03	1.15	4.75*
LeafyTR9	Coffey Seed	4.6	100	18.5	54.5	50.3	27	34	28	0.87	1.47	0.98	1.19	4.51*
Mean		4.5	98	24.7	52.2	54.6	29	36	31	1.01	1.39	0.92	1.02	4.34
CV,%		10.6	4	20.9	6.3	3.4	11	9	11	25.36	17.25	30.94	11.06	10.28
LSD,0.05		0.7	6	7.4	4.7	2.6	5	5	5	0.36	0.34	0.40	0.16	0.64

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on May 29, 50 lb/A on July 17 and 60 lb/A on Aug 14 (Total of 160 lb of N/acre).

Table 18. Dry matter yields, seedling vigor, stand ratings, maturity, and plant height of pearl millet varieties sown May 19, 2021, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1]	Percent Stand		Maturity[2]			Plant Height (in)			Yield (DM tons/acre)			
		Jun 9	Jun 9	Nov 11	Jul 16	Aug 23	Oct 1	Jul 16	Aug 23	Oct 1	Jul 16	Aug 23	Oct 1	Total
Commercial Varieties-Available for Farm Use														
Tifleaf III	Gayland Ward Seed	3.4	95	53	29.0	57.5	58.0	31	43	25	1.42	2.15	1.45	5.01*
Millex32	S&W Seed Company	4.8	97	19	47.5	55.5	56.5	45	37	29	2.16	1.12	1.69	4.98*
PearlMil	Dyna-Gro Seeds	3.5	92	51	29.0	56.5	57.0	30	41	23	1.43	1.92	1.24	4.59*
Leafy22 Hybrid	Turner Seed	3.3	89	46	29.0	56.0	56.5	32	42	23	1.31	2.01	1.22	4.55*
PP102M Hybrid	Cisco Seeds	3.5	96	4	50.0	56.0	55.5	37	38	21	1.44	1.50	0.99	3.93*
SS635	Southern States	2.8	86	43	29.0	57.0	56.0	29	43	25	0.74	1.92	1.15	3.82*
Pennleaf Hybrid	Pennington Seed	2.6	76	23	29.0	56.0	56.0	26	33	24	0.84	2.01	0.96	3.81*
SweetSummer	Cisco Seeds	2.6	91	38	29.0	54.5	57.0	24	32	22	0.86	1.52	1.32	3.69
Wonderleaf	Advanta Seeds/Ramer Seed	2.9	88	7	42.3	55.5	56.5	37	35	26	1.35	0.96	0.99	3.29
Epic BMR[3]	Coffey Seed	3.1	85	41	29.0	49.0	56.0	24	29	23	0.66	1.26	1.23	3.15
Exceed BMR	Coffey Seed	3.0	88	35	29.0	54.5	56.0	25	28	25	0.92	0.98	1.19	3.09
Prime360	Byron Seed	2.5	71	38	29.0	53.0	56.0	24	25	23	0.57	1.06	1.28	2.92
SS1562M BMR	Southern States	3.3	95	44	29.0	54.0	55.5	25	26	22	0.66	1.01	1.08	2.76
Experimental Varieties														
LeafyTR9	Coffey Seed	3.8	97	59	29.0	54.5	56.0	33	39	22	1.27	1.96	1.35	4.59*
LeafyTR7	Coffey Seed	2.8	85	41	29.0	55.5	56.5	30	40	25	1.10	2.04	1.22	4.36*
Mean		3.2	89	36	55.0	56.3	30.0	30	35	24	1.12	1.56	1.22	3.90
CV,%		15.9	7	48	4.0	1.6	8.0	8	15	16	28.12	31.53	22.25	22.19
LSD,0.05		0.7	9	25	3.2	1.3	4.0	4	7	5	0.45	0.70	0.39	1.24

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on May 21 and 40 lb/A of actual nitrogen on August 3 (Total of 100 lb of N/acre).

Table 19. Dry matter yields, maturity, and plant height of pearl millet varieties sown May 29, 2019, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Maturity[1]	Plant Height (in)			Yield (DM tons/acre)			
		Jul 26	Jul 3	Jul 26	Aug 29	Jul 3	Jul 26	Sep 3	Total
Commercial Varieties-Available for Farm Use									
Leafy22 Hybrid	Turner Seed	34.0	31	42	45	1.72	2.31	2.70	6.73*
PearlMil	Dyna-Gro Seed	37.5	30	41	42	1.61	2.13	2.76	6.50*
Wonderleaf	Alta Seed/Ramer Seed	35.3	36	37	50	2.01	1.86	2.54	6.41*
Tifleaf III Hybrid	Gayland Ward Seed	39.3	30	40	40	1.68	2.29	2.32	6.29*
SweetSummer	Cisco Seed	34.5	29	31	34	1.66	2.13	2.48	6.27*
Exceed BMR[2]	Coffey Seed	34.0	29	32	37	1.67	2.11	2.35	6.13*
SS635	Southern States	36.3	30	39	40	1.56	2.17	2.39	6.12*
Epic BMR	Coffey Seed	34.8	29	30	35	1.61	2.14	2.11	5.86
Prime360	Byron Seed	34.3	29	34	37	1.46	2.01	2.35	5.82
PP102M Hybrid	Cisco Seed	38.5	33	35	45	1.61	2.01	1.99	5.61
SS1562M BMR	Southern States	34.0	28	30	35	1.30	2.12	2.16	5.58
Experimental Varieties									
18183	Gayland Ward Seed	38.0	29	38	40	1.84	2.27	2.51	6.61*
LeafyTR-9	Coffey Seed	34.8	30	38	41	1.61	2.15	2.63	6.39*
LeafyTR-7	Coffey Seed	36.3	30	36	40	1.74	2.08	2.90	6.23*
Mean		35.8	30	36	40	1.65	2.13	2.44	6.22
CV,%		7.6	5	12	8	9.08	12.82	18.13	9.49
LSD,0.05		3.9	2	6	4	0.21	0.39	0.63	0.84

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 22 and 60 lb/A of actual nitrogen on July 10 and July 29 (Total of 180 lb of N/acre).

Table 20. Dry matter yields and plant height of pearl millet varieties sown June 2, 2020, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Plant Height (in)		Yield (DM tons/acre)			
		Jul 16	Aug 16	Jul 16	Aug 16	Sep 9	Total
Commercial Varieties-Available for Farm Use							
Millex32	S&W Seed Company	62	20	3.47	0.44	2.09	6.00*
Leafy22 Hybrid	Turner Seed	42	20	3.00	0.72	2.07	5.99*
SS635	Southern States	42	25	2.70	0.99	1.96	5.92*
Wonderleaf	Advanta Seed/Ramer Seed	58	20	3.09	0.73	2.03	5.85*
Tifleaf III Hybrid	Gayland Ward Seed	40	23	3.02	0.95	1.46	5.43*
PearlMil	Dyna-Gro Seed	44	21	2.71	0.84	1.86	5.41*
Epic BMR[1]	Coffey Seed	34	19	2.59	1.04	1.68	5.18
Prime360	Byron Seed	36	20	2.51	0.76	1.88	5.15
SS1562M BMR	Southern States	34	19	2.60	0.98	1.55	5.13
SweetSummer	Cisco Seeds	36	21	2.54	0.78	1.59	4.91
Pennleaf Hybrid	Pennington Seed	40	24	2.56	0.65	1.62	4.82
Exceed BMR	Coffey Seed	35	20	2.56	0.55	1.71	4.82
Experimental Varieties							
LeafyTR9	Coffey Seed	40	24	2.64	0.78	2.06	5.47*
LeafyTR7	Coffey Seed	39	21	2.59	1.16	1.38	5.14
Mean		41	21	2.76	0.71	1.78	5.35
CV,%		6	13	11.78	38.81	19.91	9.82
LSD,0.05		3	4	0.46	0.46	0.51	0.78

[1] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on June 1, July 23, and August 13 (Total of 180 lb of N/acre).

Table 21. Dry matter yields, maturity, and plant height of pearl millet varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Maturity[1] Jul 16	Plant Height (in)		Yield (DM tons/acre)[2]		
			Jul 16	Aug18	Jul 16	Aug 18	Total
Commercial Varieties-Available for Farm Use							
Tifleaf III	Gayland Ward Seed	35.0	39	26	2.37	1.08	3.45*
Leafy22 Hybrid	Turner Seed	35.0	41	28	2.37	1.01	3.39*
PearlMil	Dyna-Gro Seeds	35.0	38	28	2.14	1.00	3.14*
Exceed BMR[3]	Coffey Seed	35.0	35	26	1.93	1.10	3.03*
Prime360	Byron Seed	35.0	32	28	1.87	1.05	2.92
SweetSummer	Cisco Seeds	35.0	32	27	1.68	1.13	2.81
SS635	Southern States	35.0	41	27	1.95	0.83	2.78
Millex32	S&W Seed Company	44.5	54	27	2.39	0.26	2.65
Wonderleaf	Advanta Seed/Ramer Seed	37.5	49	26	2.03	0.58	2.61
SS1562M BMR	Southern States	35.0	31	26	1.59	0.97	2.57
Epic BMR	Coffey Seed	35.0	32	27	1.66	0.82	2.48
PP102M	Cisco Seeds	41.8	47	22	2.10	0.20	2.30
Experimental Varieties							
LeafyTR9	Coffey Seed	35.0	39	26	2.11	0.90	3.00*
LeafyTR7	Coffey Seed	35.0	38	25	2.05	0.64	2.69
Mean		36.3	39	26	2.02	0.83	2.84
CV,%		4.0	6	10	13.95	32.89	11.39
LSD,0.05		2.1	4	4	0.41	0.39	0.46

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] Low yields possibly due to heavy weed pressure.
[3] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 27 and July 30 (Total of 120 lb of N/acre).

Table 22. Dry matter yields, seedling vigor, stand rating, heading date, aphid damage, plant height, and maturity of forage sorghum varieties sown May 17, 2019, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jun 5	Percent Stand Jun 5	Heading Date[2]	Sugarcane Aphid Injury[3] Sep 12	Plant Height(ft) Sep 12	Maturity[4] Sep 12	Yield (DM tons/ acre) Sep 12
Commercial Varieties-Available for Farm Use								
SS405	Sorghum Partners	3.6	84	Aug 22	3	10.0	92.5	10.87*
TopTon	Dyna-Gro Seed	4.1	88	Aug 18	2	10.0	86.5	10.18*
F74FS23 BMR[5]	Dyna-Gro Seed	4.3	91	Aug 3	2	8.8	92.5	9.78*
SS1515	Southern States	3.6	90	Aug 8	3	6.8	91.0	9.77*
Super Sile 30	Dyna-Gro Seed	3.9	90	Aug 21	4	9.8	84.5	9.43*
Ensilemaster	Caudill Seed	3.5	90	Aug 15	3	9.6	92.0	9.23*
1990	S&W Seed Company	3.8	76	did not head	1	10.3	29.0	8.80
Super Sile 20	Dyna-Gro Seed	3.3	91	Aug 20	3	10.0	84.5	8.37
F75FS13	Dyna-Gro Seed	3.3	82	Jul 31	2	9.8	93.0	8.35
GW2120	Gayland Ward Seed	3.0	76	Jul 30	2	9.3	92.5	7.97
GW600 BMR	Gayland Ward Seed	4.6	89	Jul 30	1	10.3	92.5	7.80
GW475 BMR	Gayland Ward Seed	4.4	90	Jul 28	2	8.1	92.5	7.69
AF8301	Advanta Seed/Ramer Seed	4.6	88	Aug 5	2	7.3	91.5	7.67
SD1741 BMR	S&W Seed Company	4.4	84	Jul 27	2	9.8	93.0	7.44
AF7201 BMR	Advanta Seed/Ramer Seed	3.9	88	Jul 23	2	8.9	93.0	7.34
F74FS72 BMR	Dyna-Gro Seed	3.0	90	Aug 14	3	5.5	90.5	7.22
ADVF7232 BMR	Advanta Seed/Ramer Seed	3.6	91	Aug 13	3	5.8	86.5	6.85
AF7401 BMR	Advanta Seed/Ramer Seed	3.5	88	Aug 12	1	5.5	89.5	6.65
NK300	Sorghum Partners	4.1	84	Aug 6	4	6.6	92.0	6.53
GW400 BMR	Gayland Ward Seed	4.0	90	Jul 22	2	7.6	92.5	6.45
FSG114 BMR	Farm Science Gentetics	3.8	84	Jul 27	3	9.0	93.0	5.93
FSG115 BMR (Brachytic Dwarf)	Farm Science Gentetics	3.0	74	Aug 12	3	6.0	88.5	5.25
XF7203 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	3.1	83	Jul 28	2	7.5	88.5	3.73
Experimental Varieties								
FX19133	Dyna-Gro Seed	3.4	74	Aug 21	4	6.9	86.5	9.22*
ADVXF033	Advanta Seed/Ramer Seed	4.5	88	Aug 13	2	7.1	90.5	8.96
19156	Gayland Ward Seed	3.0	50	Aug 5	1	10.6	92.0	8.69
19055	Gayland Ward Seed	3.4	91	Jul 30	3	8.8	92.5	8.69
18116 BMR	Gayland Ward Seed	4.4	83	Jul 29	1	8.8	93.0	8.40
19176 BMR	Gayland Ward Seed	4.0	78	Aug 10	3	10.0	92.5	8.31
ADVXF025 BMR	Advanta Seed/Ramer Seed	4.0	85	Jul 26	1	9.9	92.0	8.20
18117 BMR	Gayland Ward Seed	3.9	89	Jul 26	2	8.6	92.5	8.01
19042	Gayland Ward Seed	3.5	88	Aug 23	1	7.1	80.0	7.93
18118 BMR	Gayland Ward Seed	4.3	88	Jul 26	2	8.9	93.0	7.59
18487	Gayland Ward Seed	3.8	93	Aug 1	2	8.3	86.5	7.53
19155 BMR	Gayland Ward Seed	3.6	96	Jul 30	4	7.8	92.5	7.41
19174 BMR	Gayland Ward Seed	3.6	88	Aug 11	4	8.4	89.0	7.36
19047 BMR	Gayland Ward Seed	3.9	84	Jul 30	2	8.5	93.0	7.15
18119 BMR	Gayland Ward Seed	4.4	93	Jul 25	1	7.4	93.0	7.14
19177 BMR	Gayland Ward Seed	3.9	81	Aug 3	3	8.8	92.5	7.13
19038	Gayland Ward Seed	4.3	85	Aug 21	5	6.5	84.0	6.85
19179	Gayland Ward Seed	3.3	61	Aug 19	1	6.0	82.5	6.60
18096	Gayland Ward Seed	4.1	90	Aug 1	3	5.8	93.0	6.51
19175 BMR	Gayland Ward Seed	3.3	70	Jul 31	2	8.4	92.5	6.44
18351	Gayland Ward Seed	3.6	89	Aug 3	1	7.8	88.5	6.43
19178 BMR	Gayland Ward Seed	4.0	87	Aug 5	2	9.5	90.5	5.55
FX19178 BMR	Dyna-Gro Seed	3.6	78	Aug 8	3	5.4	93.0	5.28
19181BMR	Gayland Ward Seed	3.6	88	Jul 26	5	5.0	93.0	4.93
19040	Gayland Ward Seed	3.8	81	Aug 13	2	6.3	87.0	4.73
Mean		3.8	84	Aug 5	2	8.1	90.4	7.51
CV,%		16.6	11	4 days	57	9.4	4.2	17.50
LSD,0.05		0.9	13	5 days	2	1.1	5.2	1.84

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Approximately 50% of heads fully emerged. Those without a date are photoperiod sensitive and remain vegetative all season.
[3] Aphid damage score based on a scale of 1 to 9 with 9 indicating all leaves affected by aphids.
[4] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[5] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 120 lb/A of actual nitrogen on May 15.

Table 23. Dry matter yields, seedling vigor, stand rating, heading date, plant height, and maturity of forage sorghum varieties sown May 28, 2020, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Heading Date[2]	Plant Height(ft) Sep 16	Maturity[3] Sep 16	Yield (DM tons/ acre) Sep18
Commercial Varieties-Available for Farm Use							
SS405	Sorghum Partners	4.6	97	Aug 31	11.5	88.5	8.48*
TopTon	Dyna-Gro Seed	3.9	95	Aug 27	10.0	85.5	7.71*
Ensilemaster	Caudill Seed	4.3	95	Aug 26	10.8	85.5	7.67*
SP1615	Sorghum Partners	4.4	99	did not head	11.5	29.0	7.42*
SS304	Sorghum Partners	3.5	97	Aug 28	11.3	87.0	7.15
Super Sile 20	Dyna-Gro Seed	4.1	99	Aug 30	10.0	87.5	7.09
Super Sile 30	Dyna-Gro Seed	4.0	97	Aug 27	10.8	88.0	6.79
SS1515	Southern States	4.1	98	Aug 16	6.5	88.0	6.20
NK300	Sorghum Partners	4.8	100	Aug 16	6.8	87.0	6.17
AF8301	Advanta Seed/Ramer Seed	4.4	99	Aug 17	7.0	89.0	6.10
F75FS13	Dyna-Gro Seed	4.1	98	Aug 1	8.8	93.0	5.57
F74FS23 BMR[4]	Dyna-Gro Seed	4.1	97	Aug 15	9.5	88.0	5.56
ADV7232 BMR	Advanta Seed/Ramer Seed	4.1	99	Aug 26	5.6	86.0	5.44
GW2120	Gayland Ward Seed	4.3	99	Jul 31	7.5	93.0	5.42
FSG114 BMR	Farm Science Genetics	4.5	100	Jul 29	8.6	93.0	5.37
SP3904BD BMR (Brachytic Dwarf)	Sorghum Partners	3.8	94	Aug 25	6.0	85.0	5.21
F74FS72 BMR	Dyna-Gro Seed	3.9	97	Aug 25	5.5	87.5	5.15
GW400 BMR	Gayland Ward Seed	4.4	98	Jul 31	7.6	93.0	5.04
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.6	96	Jul 31	7.5	92.5	4.99
GW475 BMR	Gayland Ward Seed	4.6	99	Aug 1	8.6	91.5	4.97
GW600 BMR	Gayland Ward Seed	4.9	100	Jul 30	7.4	92.0	4.96
SP3905BD BMR (Brachytic Dwarf)	Sorghum Partners	3.6	99	Aug 2	5.9	93.0	4.79
AF7401 BMR	Advanta Seed/Ramer Seed	4.0	98	Aug 25	5.9	86.0	4.56
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics	4.6	98	Aug 24	7.0	88.5	4.55
Mean		4.2	98	Aug 16	8.2	86.5	5.93
CV,%		13.4	4	4 days	6.8	2.7	13.37
LSD,0.05		0.8	5	4 days	0.8	3.3	1.12

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Approximately 50% of heads fully emerged. Those without a date are photoperiod sensitive and remain vegetative all season.
[3] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 100 lb/A of actual nitrogen on May 29.

Table 24. Dry matter yields, seedling vigor, stand rating, heading date, lodging, and maturity of forage sorghum varieties sown May 24, 2021, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 11	Percent Stand Jun 11	Heading Date[2]	Lodging[3] Sep 18	Plant Height(ft) Sep 18	Maturity[4] Sep 18	Yield (DM tons/ acre) Sep 21
Commercial Varieties-Available for Farm Use								
SS405	Sorghum Partners	4.8	99	Aug 28	0.0	13.3	88.5	16.44*
SP1615	Sorghum Partners	4.5	100	did not head	0.0	13.0	29.0	13.84
TopTon	Dyna-Gro Seed	4.5	100	Aug 22	6.5	12.0	88.0	12.24
Super Sile 20	Dyna-Gro Seed	4.0	99	Aug 23	0.5	11.6	88.0	12.23
Super Sile 30	Dyna-Gro Seed	3.8	100	Aug 26	0.0	11.8	88.5	10.80
NK300	Sorghum Partners	4.5	100	Aug 18	0.0	7.6	87.5	10.16
SS304	Sorghum Partners	3.3	96	Aug 24	1.5	12.0	90.0	10.03
F74FS23 BMR[5]	Dyna-Gro Seed	4.8	98	Aug 22	6.3	10.5	88.0	9.33
FSG114 BMR	Farm Science Genetics	4.5	97	Aug 7	4.0	11.3	90.0	9.31
F75FS13	Dyna-Gro Seed	4.8	98	Aug 4	2.0	11.3	90.0	8.96
SP3904BD BMR	Sorghum Partners	4.5	98	Aug 21	0.0	6.5	87.5	8.49
AF8301	Advanta Seed/Ramer Seed	4.3	99	Aug 20	0.0	6.8	88.3	8.29
Ensilemaster	Caudill Seed	3.8	92	Aug 24	8.0	12.0	87.5	8.16
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics	4.5	98	Aug 26	0.8	7.5	87.0	8.04
SS1515	Southern States	4.9	99	Aug 18	0.0	8.3	88.5	7.99
ADV7232 BMR	Advanta Seed/Ramer Seed	4.3	99	Aug 22	0.5	6.9	88.0	7.76
AF7401 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.3	95	Aug 17	0.0	7.3	88.3	7.42
GW475 BMR	Gayland Ward Seed	4.1	99	Aug 10	5.3	10.3	89.5	7.14
F74FS72 BMR	Dyna-Gro Seed	4.5	100	Aug 20	0.0	6.0	88.5	7.00
GW600 BMR	Gayland Ward Seed	5.0	100	Aug 5	7.5	9.9	89.5	6.92
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.8	98	Aug 5	6.5	9.8	90.0	6.54
SP3905BD BMR	Sorghum Partners	3.9	94	Aug 3	1.3	8.1	90.0	6.32
GW2120	Gayland Ward Seed	2.8	96	Aug 13	6.3	10.3	89.5	6.16
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	3.8	99	Aug 27	0.0	7.5	86.5	5.97
GW400 BMR	Gayland Ward Seed	4.3	98	Aug 6	9.0	10.8	90.0	5.89
SWFS8802	S&W Seed Company	4.0	97	Aug 6	0.0	7.0	89.0	5.78
Mean		4.3	98	Aug 17	2.7	9.6	88.7	8.76
CV,%		13.8	3	5 days	48.7	10.1	1.8	16.66
LSD,0.05		0.8	5	6 days	1.8	1.4	2.3	2.08

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Approximately 50% of heads fully emerged. Those without a date are photoperiod sensitive and remain vegetative all season.
[3] Lodging score based on a scale of 0 to 9. 0 indicating no lodging and 9 indicating all plants lodged.
[4] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[5] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 75 lb/A of actual nitrogen on May 26 and 60 lb/A of actual nitrogen on June 20 (total of 135 lb of N/acre)..

Table 25. Dry matter yields, aphid injury, lodging, and maturity of forage sorghum varieties sown June 6, 2019, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Sugarcane Aphid Injury[1] Sep 23	Lodging[2] Sep 24	Maturity[3] Sep 24	Yield (DM tons/ acre) Sep 30
Commercial Varieties-Available for Farm Use					
SS405	Sorghum Partners	8	0.3	93.0	12.59*
SP1615	Sorghum Partners	6	0.0	29.0	12.51*
Super Sile 20	Dyna-Gro Seed	7	1.8	85.5	9.11
F74FS72 BMR[4]	Dyna-Gro Seed	6	0.0	87.0	8.63
GW2120	Gayland Ward Seed	5	0.0	86.5	8.49
Super Sile 30	Dyna-Gro Seed	8	2.3	88.0	7.64
AF7401 BMR	Advanta Seed/Ramer Seed	6	0.0	87.0	7.33
EnsileMaster	Caudill Seed	7	9.0	89.0	6.27
AF8301	Advanta Seed/Ramer Seed	7	1.3	86.0	6.22
ADVF7232 BMR	Advanta Seed/Ramer Seed	6	0.0	85.0	6.18
F75FS13	Dyna-Gro Seed	6	2.0	87.0	6.17
AF7201 BMR	Advanta Seed/Ramer Seed	8	1.3	87.0	6.10
FSG114 BMR	Farm Science Genetics	6	2.0	87.0	5.80
F74FS23 BMR	Dyna-Gro Seed	8	8.0	89.5	5.60
SS1515	Southern States	6	2.8	89.0	5.54
FSG115 BMR (Brachytic Dwarf)	Farm Scuence Genetics	8	1.3	87.0	5.42
TopTon	Dyna-Gro Seed	7	9.0	87.0	5.37
Experimental Varieties					
FX19133	Dyna-Gro Seed	8	0.0	87.0	10.34*
19156	Gayland Ward Seed	6	3.0	86.5	10.23*
19038	Gayland Ward Seed	6	0.0	87.0	7.96
ADVXF033	Advanta Seed/Ramer Seed	7	0.0	87.0	7.69
19176 BMR	Gayland Ward Seed	7	4.8	86.5	7.61
18096	Gayland Ward Seed	4	0.0	86.5	7.54
ADVXFO25 BMR	Advanta Seed/Ramer Seed	6	3.5	86.0	7.45
19177 BMR	Gayland Ward Seed	7	7.3	86.5	7.43
19042	Gayland Ward Seed	5	0.3	91.0	7.37
18118 BMR	Gayland Ward Seed	8	1.3	87.0	7.09
19175 BMR	Gayland Ward Seed	6	4.0	86.5	6.94
19178 BMR	Gayland Ward Seed	6	5.8	87.0	6.59
19179	Gayland Ward Seed	5	0.0	85.0	6.48
18351	Gayland Ward Seed	6	0.0	87.0	6.43
19055	Gayland Ward Seed	6	0.5	87.0	6.42
19181	Gayland Ward Seed	7	0.0	87.0	6.23
19040	Gayland Ward Seed	6	0.0	85.0	6.17
18116 BMR	Gayland Ward Seed	7	7.3	87.0	5.59
18119 BMR	Gayland Ward Seed	6	1.0	86.5	5.50
18487	Gayland Ward Seed	6	7.8	86.5	5.42
19174 BMR	Gayland Ward Seed	7	7.3	86.5	5.25
19155 BMR	Gayland Ward Seed	7	6.5	87.0	5.16
FX19178 BMR	Dyna-Gro Seed	6	0.0	85.0	4.43
19047 BMR	Gayland Ward Seed	8	5.3	87.0	4.41
18117 BMR	Gayland Ward Seed	7	8.5	88.5	3.99
Mean		7	2.7	85.7	6.91
CV,%		16	65.5	2.7	25.24
LSD,0.05		1	2.5	3.2	2.47

[1] Aphid damage score based on a scale of 1 to 9 with 9 indicating all leaves affected by aphids.
[2] Lodging score based on a scale of 0 to 9. 0 indicating no lodging and 9 indicating all plants lodged.
[3] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 120 lb/A of actual nitrogen on May 22.

Table 26. Dry matter yields, aphid damage, lodging, and maturity of forage sorghum varieties sown June 6, 2019, at Princeton, Kentucky, and sprayed with an aphicide on August 24, 2019.

Variety	Proprietor/ Distributor	Sugarcane Aphid Injury[1] Sep 23	Lodging[2] Sep 24	Maturity[3] Sep 24	Yield (DM tons/ acre) Sep 30
Commercial Varieties-Available for Farm Use					
SP1615	Sorghum Partners	5	0.0	29.0	14.84*
SS405	Sorghum Partners	7	0.3	93.0	12.82*
Super Sile 30	Dyna-Gro Seeds	5	3.0	85.0	11.67
AF8301	Advanta Seed/Ramer Seed	6	1.5	86.0	11.19
F75FS13	Dyna-Gro Seeds	5	1.3	87.0	9.86
Super Sile 20	Dyna-Gro Seeds	6	3.3	85.5	9.61
GW2120	Gayland Ward Seed	4	0.0	86.5	8.84
SS1515	Southern States	4	2.3	87.0	8.74
ADVF7232 BMR[4]	Advanta Seed/Ramer Seed	5	0.0	89.0	8.43
FSG114 BMR	Farm Science Genetics	6	1.5	86.5	8.07
AF7401 BMR	Advanta Seed/Ramer Seed	5	0.0	87.0	7.86
TopTon	Dyna-Gro Seeds	5	7.8	85.0	7.58
F74FS23 BMR	Dyna-Gro Seeds	6	6.5	87.0	7.00
EnsileMaster	Caudill Seed	5	7.5	87.0	6.99
AF7201 BMR	Advanta Seed/Ramer Seed	7	3.5	87.0	6.66
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics	7	0.0	87.5	5.39
F74FS72 BMR	Dyna-Gro Seeds	5	0.0	87.0	5.32
Experimental Varieties					
FX19133	Dyna-Gro Seeds	6	0.3	89.0	13.03*
19038	Gayland Ward Seed	5	0.0	87.0	9.85
ADVXF033	Advanta Seed/Ramer Seed	5	0.0	87.0	9.40
19042	Gayland Ward Seed	4	0.0	91.0	8.63
ADVXFO25 BMR	Advanta Seed/Ramer Seed	5	3.3	87.0	8.03
19175 BMR	Gayland Ward Seed	7	2.3	86.5	8.00
18118 BMR	Gayland Ward Seed	7	1.5	87.0	7.75
19179	Gayland Ward Seed	4	0.0	87.0	7.40
19176 BMR	Gayland Ward Seed	6	5.5	87.0	7.26
19178 BMR	Gayland Ward Seed	5	4.8	86.5	7.21
19055	Gayland Ward Seed	4	0.0	87.0	7.04
18119 BMR	Gayland Ward Seed	6	0.3	86.5	7.02
19156	Gayland Ward Seed	6	6.0	86.0	6.94
18116 BMR	Gayland Ward Seed	7	7.5	86.5	6.85
19174 BMR	Gayland Ward Seed	7	4.5	86.5	6.75
18351	Gayland Ward Seed	4	0.0	86.5	6.63
18096	Gayland Ward Seed	3	0.0	87.0	6.61
19177 BMR	Gayland Ward Seed	6	5.3	86.5	6.18
18117 BMR	Gayland Ward Seed	6	6.7	87.0	6.09
19040	Gayland Ward Seed	3	0.0	87.5	6.03
19181	Gayland Ward Seed	7	0.0	87.0	5.64
FX19178 BMR	Dyna-Gro Seeds	5	0.3	87.0	5.61
18487	Gayland Ward Seed	5	6.5	86.0	5.59
19047 BMR	Gayland Ward Seed	7	3.8	87.0	5.52
19155 BMR	Gayland Ward Seed	7	5.5	87.0	4.63
Mean		6	2.4	85.7	7.91
CV,%		11	65.4	2.8	25.51
LSD,0.05		2	2.2	3.3	2.91

[1] Aphid damage score based on a scale of 1 to 9 with 9 indicating all leaves affected by aphids.
[2] Lodging score based on a scale of 0 to 9. 0 indicating no lodging and 9 indicating all plants lodged.
[3] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
Nitrogen application; 120 lb/A of actual nitrogen on May 22.

Table 27. Dry matter yields, maturity, plant height, lodging, and sugarcane aphid rating of forage sorghum varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Sugarcane Aphid[1] Sep 20	Plant Height (ft) Sep 20	Lodging[2] Sep 20	Maturity[3] Sep 20	Yield (DM tons/ acre) Sep 23
Commercial Varieties-Available for Farm Use						
SS405	S&W Seed Company	3.0	12.6	1.1	77.5	16.69*
SP1615	Sorghum Partners	1.8	13.0	0.3	29.0	14.32*
Super Sile 20	Dyna-Gro Seed	1.8	10.6	6.0	83.0	12.85
Super Sile 30	Dyna-Gro Seed	2.0	11.1	5.4	85.0	11.39
TopTon	Dyna-Gro Seed	2.0	10.5	10.0	82.5	10.68
AF8301	Advanta Seed/Ramer Seed	2.3	7.6	5.0	87.0	9.66
SS1515	Southern States	2.0	7.3	6.4	86.5	9.60
SP3904BD BMR[4] (Brachytic Dwarf)	Sorghum Partners	1.5	6.8	1.3	85.0	8.74
GW600 BMR	Gayland Ward Seed	1.3	9.8	9.9	87.0	8.70
SS304	Sorghum Partners	2.3	11.0	7.5	82.5	8.18
NK300	Sorghum Partners	1.8	7.1	6.9	86.5	8.00
F74FS23 BMR	Dyna-Gro Seed	2.5	9.6	9.4	85.5	7.98
ADV7232 BMR	Advanta Seed/Ramer Seed	1.5	6.3	0.5	83.0	7.94
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	1.5	8.3	8.8	87.0	7.91
F75FS13	Dyna-Gro Seed	1.5	9.5	7.8	87.0	7.51
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	2.5	7.4	2.0	82.5	7.50
F74FS72 BMR	Dyna-Gro Seed	1.8	6.1	0.0	82.5	7.33
GW2120	Gayland Ward Seed	1.3	8.8	3.0	87.0	7.03
Ensilemaster	Caudill Seed	1.8	11.0	9.5	82.5	6.85
AF7401 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	1.0	6.9	0.3	85.0	6.26
GW475 BMR	Gayland Ward Seed	2.3	9.0	9.6	87.0	5.77
GW400 BMR	Gayland Ward Seed	1.3	8.9	9.9	87.0	5.70
SWFS8802	S&W Seed Company	2.0	6.5	4.1	87.0	5.49
SP3905BD BMR (Brachytic Dwarf)	Sorghum Partners	1.5	7.0	9.9	87.0	4.98
Mean		1.8	8.9	5.6	84.9	8.63
CV,%		36.1	6.7	40.1	3.6	22.61
LSD,0.05		0.9	0.8	3.2	4.3	2.75

[1] Aphid damage score based on a scale of 1 to 9 with 9 indicating all leaves affected by aphids.
[2] Lodging score based on a scale of 0 to 10. 0 indicating no lodging and 10 indicating all plants lodged.
[3] Maturity rating scale: 29 = 9 or more elongated sheaths, 45 = boot swollen, 62 = beginning of pollen shed, 75 = endosperm milky, 93 = endosperm hard and dry. See Table 3 for complete scale.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 120 lb/A of actual nitrogen on May 27.

Table 28. Dry matter yields, seedling vigor, stand rating, and maturity of teff varieties sown May 27, 2020, at Lexington, Kentucky.

Variety[3]	Propeietor/ Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Maturity[2]			Yield (tons/acre)			
				Jul 17	Aug 11	Sep 9	Jul 17	Aug 11	Sep 9	Total
Commercial Varieties-Available for Farm Use										
Corvallis	Smith seed Services	4.9	99	47.0	52.0	66.0	1.35	1.12	1.62	4.09*
Dessie	Allied Seed	4.5	100	49.3	52.0	66.0	1.02	1.16	1.68	3.85*
Moxie	Barenbrug USA	4.5	100	50.8	52.0	66.0	1.00	1.00	1.70	3.70*
Tiffany	Turner Seed	5.0	100	49.5	52.5	66.0	1.16	1.03	1.37	3.56*
CW0604	Barenbrug USA	5.0	100	46.5	51.5	66.0	0.90	1.00	1.63	3.52*
Velvet	–	4.5	100	47.0	52.5	66.0	0.90	1.07	1.47	3.44*
VAT1Brown	Hankins Seed	4.6	100	46.0	49.8	66.0	0.89	0.94	1.56	3.40*
HorseCandi	–	4.8	99	40.5	51.5	66.0	0.78	1.04	1.53	3.34*
SummerDelight	Cisco Seeds	4.9	100	48.3	52.0	66.0	0.97	1.00	1.19	3.16
Pharaoh	First Line seeds	4.8	100	43.3	50.0	66.0	0.90	0.95	1.31	3.16
Experimental Varieties										
BARETCT	Barenbrug USA	4.9	99	41.8	52.5	66.0	0.98	0.95	1.28	3.21*
F11	Mountain View Seeds	4.9	100	47.3	52.5	66.0	0.83	1.03	1.27	3.13
Mean		4.8	100	46.4	51.7	66.0	0.97	1.02	1.47	3.46
CV,%		6.7	1	17.2	3.8	0.0	31.70	21.63	19.86	17.93
LSD,0.05		0.5	1	8.1	2.8	0.0	0.44	0.32	0.42	0.89

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] Check with local dealers for available varieties.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on May 29, 50 lb/A on July 17 and 60 lb/A on Aug 14 (Total of 160 lb of N/acre).

Table 29. Dry matter yields, seedling vigor, stand rating, and maturity of teff varieties sown May 19, 2020, at Lexington, Kentucky.

Variety[3]	Proprietor/ Distributor	Seedling Vigor[1]	Percent Stand		Maturity[2]				Yield (tons/acre)				
		Jun 9	Jun 9	Oct 11	Jul 6	Jul 30	Sep 2	Oct 11	Jul 6	Jul 30	Sep 2	Oct 11	Total
Commercial Varieties-Available for Farm Use													
HorseCandi	–	3.8	100	64	50.0	49.8	52.0	56.0	2.33	1.65	1.46	0.23	5.67*
Velvet	–	4.3	100	78	52.0	49.3	53.5	56.0	2.26	1.48	1.42	0.30	5.46*
Dessie	Allied Seed	4.6	100	95	51.0	48.0	54.0	56.0	2.24	1.51	1.45	0.43	5.42*
Pharoah	First Line Seeds	4.8	100	71	50.0	48.0	52.5	56.0	1.89	1.54	1.55	0.28	5.25*
CW0604	Barenbrug USA	5.0	100	50	51.5	48.0	54.0	56.0	2.15	1.37	1.50	0.20	5.21*
SummerDelight	Cisco Seeds	4.0	98	65	52.0	49.3	52.5	56.0	2.10	1.26	1.52	0.22	5.10*
Moxie	Barenbrug USA	4.6	100	66	51.0	54.0	55.0	56.0	2.01	1.46	1.35	0.23	5.05*
VAT1Brown	Hankins Seed	5.0	100	50	50.0	48.5	50.5	56.0	1.97	1.44	1.43	0.13	4.97*
Tiffany	Turner Seed	4.9	100	67	50.5	50.3	52.3	56.0	2.00	1.36	1.29	0.26	4.81*
Corvallis	Smith Seed Services	4.4	100	34	50.5	49.8	50.5	56.0	1.88	1.31	1.45	0.10	4.73*
Experimental Varieties													
F11	Mountain View Seeds	4.9	100	85	50.5	49.3	53.5	56.0	2.09	1.18	1.45	0.35	5.06*
BARETCT	Barenbrug USA	5.0	100	44	52.0	48.0	52.5	56.0	1.97	1.43	1.36	0.19	4.95*
Mean		4.6	100	63	50.9	49.3	52.7	56.0	2.07	1.41	1.44	0.24	5.14
CV,%		6.4	1	27	1.5	6.0	4.1	0.0	15.11	18.95	21.79	48.79	12.41
LSD,0.05		0.4	1	26	1.1	4.2	3.1	0.0	0.45	0.39	0.45	0.17	0.95

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] Check with local dealers for available varieties.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on May 21 and 40lb/A onJuly 7 and August 3 (Total of 140 lb of N/acre).

Table 30. Dry matter yields, maturity, and plant height of teff varieties sown June 2, 2020, at Princeton, Kentucky.

Variety[2]	Proprietor/ Distributor	Maturity[1]	Plant Height (in)	Yield (tons/acre)			
		Jul 16	Jul 16	Jul 16	Aug 7	Sep 9	Total
Commercial Varieties-Available for Farm Use							
Corvallis	Smith Seed Services	54	20	2.48	1.10	1.82	5.40*
HorseCandi	–	54	23	1.61	1.30	2.12	5.03*
Pharaoh	First Line Seeds	54	23	1.70	1.39	1.92	5.01*
CW0604	Barenbrug USA	54	22	1.85	1.18	1.94	4.96*
Moxie	Barenbrug USA	54	20	1.74	1.20	1.95	4.89*
Velvet	–	54	20	1.67	1.08	1.97	4.72*
Tiffany	Turner Seed	54	20	1.64	1.38	1.70	4.72*
Dessie	Allied Seed	54	21	1.87	0.90	1.94	4.71*
VAT1Brown	Hankins Seed	54	20	1.77	0.99	1.69	4.46*
SummerDelight	Cisco Seeds	54	22	1.65	1.45	1.22	4.32*
Mean		54	21	1.80	1.20	1.83	4.82
CV,%		0	14	29.05	27.51	27.71	18.11
LSD,0.05		0	4	0.76	0.48	0.73	1.27

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] Check with local dealers for available varieties.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on July 22 and August 13 (Total of 120 lb of N/acre).

Table 31. Dry matter yields and plant height of teff varieties sown May 25, 2021, at Princeton, Kentucky.

Variety[2]	Proprietor/ Distributor	Plant Height (in) Jul 23	Yield (tons/acre)[1]		
			Jul 23	Aug 19	Total
Commercial Varieties-Available for Farm Use					
Dessie	Allied Seed	20	0.50	0.71	1.22*
Moxie	Barenbrug USA	25	0.46	0.64	1.10*
VAT1Brown	Hankins Seed	23	0.53	0.47	1.00*
Tiffany	Turner Seed	24	0.47	0.51	0.99*
Pharaoh	First Line Seeds	19	0.50	0.43	0.93*
HorseCandi	–	22	0.48	0.44	0.92*
Corvallis	Smith Seed Services	23	0.44	0.45	0.88*
Velvet	–	23	0.51	0.38	0.88*
SummerDelight	Cisco Seeds	23	0.41	0.43	0.85*
CW0604	Barenbrug USA	25	0.55	0.28	0.83*
Mean		23	0.49	0.47	0.96
CV,%		18	23.17	54.74	27.96
LSD,0.05		6	0.16	0.38	0.39

[1] Low yields possibly due to heavy weed pressure.
[2] Check with local dealers for available varieties.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 27 and July 30 (Total of 120 lb of N/acre).

Table 32. Dry matter yields, seedling vigor, stand rating, and maturity of crabgrass varieties sown May 16, 2019, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jun 5	Percent Stand		Maturity[2]		Yield (tons/acre)			
			Jun 5	Oct 14	Jul 2	Aug 12	Jul 2	Aug 12	Oct 14	Total
Commercial Varieties-Available for Farm Use										
Red River	Noble Foundation	4.5	99	99	45.0	58.0	1.94	2.57	0.33	4.84*
Impact	Barenbrug USA	3.5	96	96	45.0	57.5	1.78	2.64	0.35	4.77*
QuickNBig	Noble Foundation	5.0	100	9	55.0	57.5	2.22	1.34	0.02	3.58
Experimental Varieties										
BARDSiRR	Barenbrug USA	4.0	99	99	45.0	58.0	1.83	2.39	0.24	4.46*
Mean		4.1	98	79	47.0	57.7	1.91	2.32	0.26	4.49
CV,%		13.2	2	3	1.8	1.3	6.33	12.57	55.13	7.06
LSD,0..05		0.8	3	3	1.2	1.0	0.19	0.42	0.20	0.45

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 15 and 30 lb/A of actual nitrogen on July 3 (Total of 90 lb of N/acre).

Table 33. Dry matter yields, seedling vigor, stand rating, and maturity of crabgrass varieties sown May 27, 2020, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jun 25	Percent Stand Jun 25	Maturity[2]		Yield (tons/acre)			
				Jul 17	Sep 9	Jul 17	Aug 11	Sep 9	Total
Commercial Varieties-Available for Farm Use									
Impact	Barenbrug USA	4.1	97	29	66	0.37	1.37	1.66	3.40*
Red River	Noble Foundation	4.6	100	29	66	0.58	1.30	1.26	3.13*
Mojo w/YJ[3]	Barenbrug USA	4.3	97	29	66	0.48	1.14	1.49	3.11*
QuickNBig	Noble Foundation	5.0	100	51	66	0.94	0.97	1.09	3.01*
Experimental Varieties									
BARDSiRR	Barenbrug USA	4.5	97	29	66	0.40	1.26	1.69	3.35*
Mean		4.5	98	33.5	66	0.55	1.21	1.44	3.20
CV,%		4.2	1	6.5	0	36.27	20.28	15.70	15.15
LSD,0.05		0.3	2	3.3	0	0.31	0.38	0.35	0.75

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] YJ = yellow jacket coating on the seed.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on May 29, 50 lb/A on July 17 and 60 lb/A on Aug 14 (Total of 160 lb of N/acre).

Table 34. Dry matter yields, seedling vigor, stand ratings, and maturity of crabgrass varieties sown May 19, 2021, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1]	Percent Stand		Maturity[2]				Yield (tons/acre)				
		Jun 9	Jun 9	Oct 11	Jul 9	Aug 2	Sep 2	Oct 11	Jul 9	Aug 2	Sep 2	Oct 11	Total
Commercial Varieties-Available for Farm Use													
Impact	Barenbrug USA	4.0	99	99	37.0	46.3	58.0	58.0	1.69	1.62	2.11	1.12	6.54*
Mojo w/YJ[3]	Barenbrug USA	3.5	98	98	41.0	53.5	58.0	58.0	1.52	1.75	1.93	0.97	6.16*
RedRiver	Noble Foundation	3.5	96	88	45.0	55.5	58.0	58.0	1.65	1.49	1.66	0.68	5.48
QuickNBig	Noble Foundation	5.0	100	23	49.3	55.5	58.0	58.0	1.96	1.13	1.14	0.17	4.39
Experimental Varieties													
BARDSiRR	Barenbrug USA	4.1	97	97	41.0	51.8	58.0	58.0	1.45	1.53	2.00	0.88	5.87*
Mean		4.0	98	81	42.7	52.5	58.0	58.0	1.65	1.50	1.77	0.76	5.69
CV,%		12.3	2	13	7.5	4.5	0.0	0.0	9.98	24.53	10.38	17.01	7.72
LSD,0.05		0.8	3	16	4.9	3.7	0.0	0.0	0.25	0.57	0.28	0.20	0.68

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] YJ = yellow jacket coating on the seed.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on May 21 and 40lb/A on August 3 (Total of 100 lb of N/acre).

Table 35. Dry matter yields, maturity, and plant height of crabgrass varieties sown May 29, 2019 at Princeton, Kentucky.

Variety	Proprietor/Distributor	Maturity[1]		Plant Height (in)		Yield (tons/acre)		
		Jul 9	Aug 13	Jul 9	Aug 13	Jul 9	Aug 13	Total
Commercial Varieties-Available for Farm Use								
Impact	Barenbrug USA	33.4	56.3	22	23	1.10	1.79	2.88*
QuickNBig	Noble Foundation	48.3	58.8	32	20	1.48	1.15	2.70*
RedRiver	Noble Foundation	34.0	56.8	23	24	1.30	1.38	2.62*
Experimental Varieties								
BARDSiRR	Barenbrug USA	32.8	57.5	22	23	1.23	1.59	2.83*
Mean		36.4	57.1	24	23	1.24	1.53	2.78
CV,%		9.8	2.8	10	8	14.56	35.33	20.29
LSD,0.05		5.1	2.3	3	2	0.26	0.93	0.97

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on May 22 and 60 lb/A of actual nitrogen on July 10 (Total of 120 lb of N/acre).

Table 36. Dry matter yields, maturity, and plant height of crabgrass varieties sown June 2, 2020, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Maturity[1]	Plant Height (in)	Yield (tons/acre)			
		Jul 16	Jul 16	Jul 16	Aug 6	Sep 9	Total
Commercial Varieties-Available for Farm Use							
Red River	Noble Foundation	41.5	22	2.04	0.74	2.15	4.92*
QuickNBig	Noble Foundation	41.5	20	2.01	1.06	1.81	4.87*
Impact	Barenbrug USA	41.5	20	1.77	1.02	2.19	4.84*
Mojo w/YJ[2]	Barenbrug USA	41.5	22	1.69	0.80	2.21	4.70*
Mean		41.5	21	1.86	0.90	2.08	4.83
CV,%		0	12	15.72	25.25	12.58	8.78
LSD,0.05		0	4	0.47	0.37	0.44	0.72

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] YJ = yellow jacket coating on the seed.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on July 22 and August 13 (Total of 120 lb of N/acre).

Table 37. Dry matter yields, maturity, and plant height of crabgrass varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/ Distibutor	Maturity[1] Jul 23	Plant Height (in) Jul 23	Yield (tons/acre)[2]		
				Jul 23	Aug 19	Total
Commercial Varieties-Available for Farm Use						
RedRiver	Noble foundation	36.0	20	1.43	0.38	1.81
QuickNBig	Noble foundation	45.0	22	1.45	0.23	1.68
Mojo w/YJ[3]	Barenbrug USA	35.5	21	1.34	0.28	1.62
Impact	Barenbrug USA	35.5	21	1.34	0.25	1.59
Mean		39.3	21	1.39	0.29	1.68
CV,%		2.8	11	15.87	57.44	13.72
LSD,0.05		1.7	4	0.35	0.26	0.37

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[2] Low yields possibly due to heavy weed pressure.
[3] YJ = yellow jacket coating on the seed.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on May 27 and July 30 (Total of 120 lb of N/acre).

Table 38. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops and annual ryegrass sown March 19, 2019, at Lexington, Kentucky.

Variety	Species	Proprietor/ Distibutor	Seedling Vigor[1] Apr 25	Percent Stand Apr 25	Maturity[2]		Yield (tons/acre)		
					May 21	Jun 20	May 21	Jun 21	Total
Excell	spring oat	Ag. Alumni Seed, IN	5.0	100	45.0	58.0	2.20	0.55	2.75*
CCSO120	hlack hulled oat	Caldbeck Consulting	5.0	100	45.0	47.8	1.84	0.71	2.55*
Persik	black hulled oat	Caldbeck Consulting	4.6	100	45.0	47.5	1.91	0.64	2.55*
CCSO102	spring oat	Caldbeck Consulting	4.9	98	46.3	50.8	1.90	0.55	2.45*
Saber	spring oat	Ag. Alumni Seed, IN	5.0	100	50.0	59.5	1.93	0.40	2.33
Jerry	spring oat	Caudill Seed	5.0	100	45.0	46.3	1.69	0.60	2.29
VNK	spring oat	public	4.6	100	48.8	58.5	1.76	0.51	2.27
Robust	spring oat	Ag. Alumni Seed, IN	4.9	100	45.0	49.0	1.82	0.45	2.27
BCO18006	spring oat	Seed-link Inc.	4.5	99	45.0	46.3	1.56	0.64	2.20
Haywire	spring oat	Cisco Seeds	5.0	100	45.0	45.0	1.65	0.31	1.96
Marshall	annual ryegrass	The Wax Company	3.1	100	56.0	62.0	1.06	0.82	1.88
Byron	spring triticale	Byron Seed	3.6	99	45.0	60.0	1.34	0.53	1.87
BCO18007	spring oat	Seed-link Inc.	4.0	98	45.0	47.5	1.40	0.39	1.79
BCT18501	spring triticale	Seed-link Inc.	2.6	95	47.5	61.5	1.20	0.54	1.74
CCSW330	spring wheat	Caldbeck Consulting	3.8	98	45.0	58.0	0.99	0.48	1.47
Maton	cerealrRye	Caudill Seed	5.0	100	56.0	62.0	0.76	0.56	1.31
TetraPrime	Italian ryegrass	Mountain View Seed	2.9	99	29.0	29.0	0.78	0.53	1.31
Dynagro9600	winter wheat	Dyna-Gro Seed	3.1	100	29.0	33.0	0.52	0.42	0.94
Mean			4.3	99	45.1	51.2	1.46	0.53	2.00
CV,%			10.0	2	2.4	6.6	15.53	31.70	12.97
LSD,0.05			0.6	2	1.6	4.8	0.32	0.16	0.37

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/A of actual nitrogen on March 19.

Table 39. Dry matter yields, stand rating, and maturity of cereal crops sown March 28, 2020, at Lexington, Kentucky.

			Percent Stand		Maturity[1]		Yield (tons/acre)		
Variety	Species	Proprietor/Distributor	Apr 23	Jul 16	Jun 10	Jul 16	Jun 10	Jul 16	Total
Excel	spring oat	Ag. Alumni Seed, IN	100	66	57.5	75.0	1.77	0.23	2.00*
Jerry	spring oat	Caudill Seed	100	81	55.5	75.0	1.50	0.40	1.90*
CCSO102	spring oat	Caldbeck Consulting	99	93	56.0	75.0	1.30	0.37	1.67*
Persik	black hulled oat	Caldbeck Consulting	100	83	55.5	75.0	1.40	0.22	1.62
Haywire	spring oat	Cisco Seeds	99	88	45.0	75.0	1.12	0.46	1.57
Reins	spring oat	Ag. Alumni Seed, IN	99	43	58.0	75.0	1.32	0.25	1.57
VNK	spring oat	public	100	48	57.5	75.0	1.32	0.17	1.48
CCSO120	black hulled oat	Caldbeck Consulting	99	86	54.0	75.0	1.15	0.30	1.45
BCO18006	spring oat	Seed-link Inc.	98	91	46.8	75.0	0.93	0.50	1.44
BCO18007	spring oat	Seed-link Inc.	100	79	57.5	75.0	1.07	0.25	1.32
CCSW330	spring wheat	Caldbeck Consulting	99	98	55.5	75.0	0.90	0.37	1.28
BCT18501	spring triticale	Seed-link Inc.	97	33	62.0	75.0	0.97	0.14	1.11
Elbon	cereal rye	Caudill Seed	100	100	62.0	71.8	0.45	0.42	0.87
Pembroke 2016	winter wheat	KY. Agric .Exp.Station	100	100	29.0	29.0	0.11	0.33	0.44
Mean			99	78	53.7	71.4	1.09	0.31	1.41
CV,%			1	18	2.7	2.4	17.46	35.77	16.58
LSD,0.05			1	20	2.1	2.5	0.27	0.16	0.33

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 50 lb/A of actual nitrogen on Mar 30.

Table 40. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops and annual ryegrass sown March 23, 2021, at Lexington, Kentucky.

			Seedling Vigor[1]	Percent Stand	Maturity[2]		Yield (tons/acre)		
Variety	Species	Proprietor/Distributor	Apr 20	Apr 20	May 28	Jun 21	May 28	Jun 21	Total
Excel	spring oat	Ag. Alum.Seed, IN	4.3	100	54.5	49.8	2.68	0.55	3.24*
VNK	spring oat	public	3.1	98	55.0	55.0	2.28	0.94	3.22*
Jerry	spring oat	Caudill Seed	3.5	100	45.0	46.3	2.29	0.92	3.20*
CCSO120	black hulled oat	Caldbeck Consulting	3.4	100	47.3	46.3	2.33	0.87	3.19*
PSTSOKMJ06	spring oat	Caldbeck Consulting	4.1	99	46.8	48.0	2.53	0.66	3.19*
Persik	black hulled oat	Caldbeck Consulting	3.0	100	46.8	46.8	2.26	0.75	3.01*
PSTSOPH26	black hulled oat	Caldbeck Consulting	3.3	100	45.0	53.0	2.15	0.85	3.00*
Saber	spring oat	Ag. Alum.Seed, IN	3.9	100	56.0	56.0	2.40	0.55	2.95*
Reins	spring oat	Ag. Alum.Seed, IN	4.4	100	56.0	54.5	2.35	0.30	2.64
Marshall	annual ryegrass	The Wax Company	2.0	100	56.0	62.0	0.87	0.97	1.83
Elbon	cereal rye	Caudill Seed	4.5	99	61.0	62.0	1.02	0.54	1.56
Pembroke2016	winter wheat	Ky. Agric. Exp. Station	3.9	100	29.0	29.0	0.59	0.65	1.25
Mean			3.6	100	49.9	50.7	1.98	0.71	2.69
CV,%			20.5	1	4.3	4.1	15.58	26.13	12.61
LSD,0.05			1.1	2	3.1	3.0	0.44	0.27	0.49

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 60 lb/ A of actual nitrogen on Mar 23.

Table 41. Dry matter yields, stand rating, and maturity of cereal crops sown September 20, 2018, at Lexington, Kentucky (two harvests-early first harvest).

Variety	Species	Proprietor/Distributor	Percent Stand Sep 28, 2018	Maturity[1]		Yield (tons/acre)		
				Apr 10	May 10	Apr 10	May 10	Total
Elbon	rye	Noble Foundation/Caudill Seed	100	45.0	58.0	3.50	1.41	4.91*
Maton	rye	Noble Foundation/Caudill Seed	100	45.0	58.0	3.24	1.31	4.55*
SouthernBlue	rye	Caudill Seed	100	45.0	58.0	2.76	1.23	4.00
Forerunner	triticale	Cisco Seeds	100	31.5	53.5	2.06	1.44	3.50
Bobcat	triticale	Fabian Seed Farms	100	32.0	55.5	2.02	1.18	3.20
DG9701	wheat	Dyna-Gro Seed	100	31.0	53.0	1.53	1.33	2.85
DG9600	wheat	Dyna-Gro Seed	100	31.3	53.0	1.55	1.25	2.80
DG9750	wheat	Dyna-Gro Seed	100	31.0	54.0	1.51	1.28	2.79
Mean			100	36.5	55.4	2.27	1.30	3.57
CV,%			0	0.8	3.1	10.43	13.65	9.74
LSD,0.05			0	0.4	2.5	0.35	0.26	0.51

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 42. Dry matter yields, stand rating, and maturity of cereal crops sown September 20, 2018, at Lexington, Kentucky.

Variety	Species	Proprietor/Distributor	Percent Stand Sep 28, 2018	Maturity[1] May 10	Yield (tons/acre) May 10
Forerunner	triticale	Cisco Seeds	100	64	5.12*
Elbon	rye	Noble Foundation/Caudill Seed	100	75	4.65*
Maton	rye	Noble Foundation/Caudill Seed	100	75	4.53
Bobcat	triticale	Fabian Seed Farms	100	64	4.41
DG9750	wheat	Dyna-Gro Seed	100	66	3.99
SouthernBlue	rye	Caudill Seed	100	75	3.94
DG9600	wheat	Dyna-Gro Seed	100	66	3.93
DG9701	wheat	Dyna-Gro Seed	100	66	3.80
Mean			100	69	4.29
CV,%			0	0	8.11
LSD,0.05			0	0	0.51

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 43. Dry matter yields, seedling vigor, stand rating, plant height, and maturity of cereal crops sown October 16, 2019, at Lexington, Kentucky (three harvest-early first harvest).

Variety	Species	Proprietor/ Distributor	Seedling Vigor[1] Nov 11, 2019	Percent Stand Nov 11, 2019	Plant Height (in) Apr 2, 2020	Maturity[2]			Yield (tons/acre)			
						Apr 2	May 14	Jun 18	Apr 2	May 14	Jun 18	Total
Elbon	rye	Noble Foundation/ Caudill Seed	5.0	100	30	45.0	55.5	62.0	2.21	1.28	0.42	3.91*
WrensAbruzzi	rye	Caudill Seed	5.0	100	26	45.0	56.5	62.0	1.93	1.04	0.36	3.32*
Triticale/rye VNS blend	triticale/rye		4.5	98	11	30.5	55.5	61.5	0.57	2.19	0.51	3.27
Forerunner	triticale	Cisco Seeds	4.0	94	10	29.3	46.3	61.5	0.54	2.07	0.42	3.03
Bobcat	triticale	Fabian Seed Farms	4.5	97	18	35.0	56.0	59.5	0.57	1.11	0.36	2.05
WheatVNS	wheat	Public	3.4	94	14	33.8	55.2	57.6	0.52	0.99	0.44	1.95
DG9701	wheat	Dyna-Gro Seed	4.4	100	12	31.3	52.8	59.0	0.48	0.92	0.30	1.70
DG9750	wheat	Dyna-Gro Seed	3.9	96	13	31.0	54.0	57.0	0.59	0.71	0.32	1.63
DG9600	wheat	Dyna-Gro Seed	4.7	99	12	30.7	51.0	57.3	0.53	0.50	0.32	1.34
Mean			4.3	97	16	34.7	53.8	59.7	0.88	1.22	0.39	2.48
CV,%			9.5	2	17	9.8	5.3	2.0	23.04	18.77	31.98	16.70
LSD,0.05			0.6	3	4	5.0	4.2	1.8	0.30	0.34	0.18	0.61

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 44. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown Oct 16, 2019, at Lexington, Kentucky (two harvests).

Variety	Species	Proprietor/ Distributor	Seedling Vigor[1] Nov 11, 2019	Percent Stand Nov 11, 2019	Maturity[2]		Yield (tons/acre)		
					May 14	Jun 18	May 14	Jun 18	Total
Triticale/Rye VNS blend	triticale/rye		3.9	93	67.0	59.5	5.33	0.11	5.44*
Elbon	rye	Noble Foudation/ Caudill Seed	5.0	100	70.0	62.0	3.83	0.58	4.41
Forerunner	triticale	Cisco Seeds	3.5	89	55.5	60.0	3.84	0.37	4.21
WrensAbruzzi	rye	Caudill Seed	5.0	100	70.0	62.0	3.51	0.38	3.90
DG9750	wheat	Dyna-Gro Seed	4.3	96	58.0	57.0	2.95	0.32	3.26
Bobcat	triticale	Fabian Seed Farm	3.9	94	58.0	58.0	2.81	0.30	3.11
DG9701	wheat	Dyna-Gro Seed	4.4	98	58.0	57.0	2.86	0.17	3.04
DG9600	wheat	Dyna-Gro Seed	4.3	97	58.0	57.3	2.93	0.08	3.01
WheatVNS	wheat	Public	3.3	93	58.0	57.6	2.68	0.33	3.00
Mean			4.1	95	61.4	58.9	3.41	0.30	3.71
CV,%			11.6	2	3.3	2.1	11.27	51.20	9.48
LSD,0.05			0.7	3	3.0	1.8	0.56	0.23	0.52

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 45. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown November 2, 2020, at Lexington, Kentucky (early first harvest).

Variety	Species	Proprietor/ Distributor	Seedling Vigor[1] Dec 8, 2020	Percent Stand 2020 Dec 8	Percent Stand 2021 Mar 24	Maturity[2] Apr 13/ Apr 30[3]	Maturity[2] May 13/ May 28	Maturity[2] Jun 1/ Jun 30	Yield (tons/acre) Apr 13/ Apr 30	Yield (tons/acre) May 13/ May 28	Yield (tons/acre) Jun 1/ Jun 30	Yield (tons/acre) Total
Trical Flex 719	triticale	Cisco Seeds	3.9	98	98	45.0	50.8	55.5	2.06	1.00	0.20	3.25*
Elbon	rye	Noble Foundation/ Caudill Seed	4.9	100	100	45.0	53.0	56.0	1.61	0.98	0.31	2.90*
Wrens Abruzzi	rye	Caudill Seed	4.9	100	100	45.0	53.5	56.0	1.52	0.79	0.50	2.81*
Forerunner	triticale	Cisco Seeds	2.9	92	92	45.0	48.5	56.0	1.59	1.03	0.15	2.78*
Graze King 90	rye	Cisco Seeds	4.5	100	100	45.0	54.0	56.0	1.30	0.78	0.36	2.44
Wheat VNK	wheat	Public	2.9	93	94	45.0	53.5	54.5	1.22	0.96	0.19	2.37
Pembroke 2016	wheat	KY Agric. Exp. Station	3.1	97	97	45.0	53.5	55.5	1.24	0.64	0.16	2.04
Mean			3.9	97	97	45.0	57.4	55.6	1.50	0.88	0.27	2.66
CV,%			7.1	4	4	0.0	6.1	2.0	18.03	33.50	31.31	15.55
LSD,0.05			0.4	5	5	0.0	4.7	1.7	0.40	0.44	0.12	0.61

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
[3] Rye varieties on early date, wheat and triticale on later date.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 70 lb/ A of actual nitrogen on March 5.

Table 46. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown November 2, 2020, at Lexington, Kentucky.

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Dec 8, 2020	Percent Stand 2020 Dec 8	Percent Stand 2021 Mar 24	Maturity[2] May 21	Maturity[2] Jun 23	Yield (tons/acre) May 21	Yield (tons/acre) Jun 23	Yield (tons/acre) Total
Trical Flex 719	triticale	Cisco Seeds	3.8	97	97	66.0		4.85	0.03	4.87*
Graze King 90	rye	Cisco Seeds	4.3	99	100	75.0	62.0	4.39	0.42	4.81*
Elbon	rye	Noble Foundation/ Caudill Seed	5.0	100	100	75.0	61.5	4.29	0.35	4.64*
Forerunner	triticale	Cisco Seeds	2.9	91	92	66.0	57.5	4.08	0.43	4.52*
Wrens Abruzzi	rye	Caudill Seed	4.8	100	100	75.0	61.5	4.06	0.28	4.34*
Pembroke 2016	wheat	KY Agric. Exp. Station	3.9	99	99	66.0	56.0	3.47	0.46	3.93
Wheat VNK	wheat	Public	3.5	99	99	66.0	57.5	3.07	0.30	3.37
Mean			4.0	98	98	69.9	59.3	4.03	0.32	4.35
CV,%			9.8	2	2	0.0	1.4	9.27	45.39	10.49
LSD,0.05			0.6	3	3	0.0	1.3	0.56	0.22	0.68

[1] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[2] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 70 lb/ A of actual nitrogen on March 5.

Table 47. 2021 Kentucky wheat variety forage/cover crop trial.

Variety	Dry Matter Yield (tons/acre)	Cover Crop[1] Canopy (%)	Head Type
AgriMAXX 492	3.86	25	Bearded
13VTK429-3	3.80	26	Bearded
KAS 20X29	3.76	8	Bearded
Go Wild Feral Forage	3.48	20	Smooth
X11-0120-12-4-3	3.42	31	Smooth
KAS 20X47	3.40	20	Bearded
AgriMAXX 498	3.36	18	Smooth
Dyna-Gro 9692	3.32	17	Bearded
USG 3329	3.30	17	Bearded
X12-3051-53-17-3	3.27	27	Smooth
AgriMAXX 454	3.25	18	Bearded
GoWheat 2059	3.24	22	Smooth
MI16R0898	3.20	17	Tip-Awned
Liberty 5658	3.18	31	Bearded
GROWMARK FS 600	3.17	20	Bearded
Bess	3.17	22	Smooth
KAS 20X16	3.17	15	Bearded
USG 3352	3.14	16	Bearded
Dyna-Gro WX21741	3.13	10	Bearded
USG 3316	3.12	20	Bearded
PEMBROKE 2016	3.11	22	Bearded
X12-920-39-9-5	3.11	29	Bearded
PEMBROKE 2021	3.10	24	Smooth
X11-0130-13-2-3	3.10	35	Smooth
X11-0357-24-13-5***	3.08	25	Smooth
Dyna-Gro WX20734	3.08	13	Bearded
Dyna-Gro WX20738	3.07	16	Bearded
AgriMAXX 505	3.04	17	Bearded
LOCAL LW2169	3.04	19	Bearded
GROWMARK FS 623	3.04	16	Smooth
KAS ADAMS	3.02	17	Bearded
KWS340	3.02	19	Smooth
AgriPro 576	3.02	21	Bearded
AC-2-17-5-5	2.99	30	Smooth
Truman	2.99	21	Smooth
Dyna-Gro 9120	2.99	16	Bearded
X12-3010-4-4-1	2.97	26	Smooth
Pioneer variety 26R10	2.97	15	Bearded
GROWMARK FS 616	2.97	20	Bearded
Pioneer variety 26R59	2.97	13	Smooth
KY06C-1178-16-10-3-34	2.96	30	Bearded
Dyna-Gro 9172	2.95	16	Bearded
PROGENY #BLAZE	2.94	15	Bearded
Dyna-Gro 9151	2.94	19	Bearded
KAS 19X24	2.93	13	Bearded
X11-0170-52-3-3	2.90	31	Smooth
GROWMARK FS 624	2.90	25	Smooth
GROWMARK FS WX21B	2.88	16	Bearded
AgriMAXX EXP 2009	2.88	26	Bearded
X11-0039-1-17-5***	2.88	31	Smooth
AgriMAXX 485	2.86	14	Smooth
Pioneer variety 26R41	2.86	16	Bearded
MI16R0906	2.85	23	Tip-Awned
Dyna-Gro 9941	2.84	16	Bearded
Dyna-Gro 9002	2.83	12	Bearded
GROWMARK FS 601	2.82	19	Bearded
Go Wheat 4059S	2.82	12	Smooth
AgriMAXX 514	2.80	23	Bearded
KWS375	2.79	26	Bearded
X11-0374-104-13-5**	2.78	30	Tip-Awned
VA 17W-74	2.78	25	Smooth
AgriPro Viper	2.76	13	Smooth
Pioneer variety 26R36	2.73	21	Bearded
AgriPro 547	2.72	11	Smooth
PROGENY #BULLET	2.72	16	Bearded
AgriMAXX 513	2.72	15	Bearded
AgriPro Richie	2.69	13	Smooth
KWS338	2.68	26	Smooth
AgriPro SREXP0117	2.67	10	Smooth
Pioneer variety 26R45	2.62	14	Smooth
LOCAL LW2068	2.58	19	Bearded
AgriMAXX 516	2.57	15	Bearded
AgriMAXX 503	2.57	16	Smooth
LOCAL LW2148	2.51	19	Smooth
USG 3118	2.48	28	Tip-Awned
KWS291	2.46	28	Tip-Awned
PROGENY PGX18-7	2.43	11	Bearded
LOCAL LW2848	2.42	20	Bearded
USG 3562	2.31	17	Bearded
USG 3472	2.30	13	Bearded
GoWheat 2058	2.23	10	Bearded
AgriPro 100	2.06	18	Smooth
MI16R0720	2.03	15	Smooth
AgriPro SREXP0119	1.96	14	Smooth
Average	2.91	19	
C.V.	17.00	18	
LSD (0.10)	0.82	6	

[1] Winter cover crop/grazing biomass estimate (% canopy coverage using Canopeo): measured: 1-22-2021.

Location: Bluegrass Region (Fayette County).
Planting date: 10-23-2020, conventional tillage.
Dry matter yield harvest date at milk stage: 5-14-2021.

Originally appeared in PR-796, Table 4 (uky.edu/Ag/WheatVarietyTest).

Table 48. Quality values of sudangrass varieties sown May 27, 2020, at Lexington, Kentucky (sampled at first harvest on July 8, 2020, and ranked by TDN).

Variety	Proprietor/Distributor	CP	ADF	NDF	TDN
SS130 BMR	Cal/West Seeds	11.5	34.6	60.3	61.6*
AS9302 BMR (Brachytic Dwarf)	Advanta Seed/ Ramer Seed	11.4	34.8	60.9	61.4*
Piper	Public	9.3	36.7	62.7	59.3*
ProMax BMR	Ampac Seed	9.3	36.9	61.9	59.1
Trudan Headless	S&W Seed Company	9.5	38.5	64.3	57.2
Mean		10.2	36.3	62.0	59.7
CV,%		13.1	3.8	3.3	2.6
LSD,0.05		2.1	2.1	3.2	2.4

Table 49. Quality values of sorghum-sudangrass varieties sown May 27, 2020, at Lexington, Kentucky (samples taken at first harvest on July 8, 2020, and ranked by TDN).

Variety	Proprietor/Distributor	CP	ADF	NDF	TDN
Xtragraze BMR	Coffey Seed	12.5	33.0	57.6	63.4*
NutraKing BMR	Public	12.1	33.4	57.2	62.9*
Surpass BMR	Turner Seed	14.2	33.5	59.4	62.9*
AS6402 BMR	Advanta Seed/Ramer Seed	13.8	33.8	58.7	62.5*
SP4105 BMR	Sorghum Partners	14.4	33.9	57.7	62.4*
DannyBoy II BMR	Dyna_Gro Seeds	13.3	33.9	59.2	62.4*
FullGraze II BMR	Dyna_Gro Seeds	12.7	34.0	59.5	62.3*
AS6401 BMR	Advanta Seed/Ramer Seed	12.5	34.0	57.8	62.3*
FullGraze II	Dyna_Gro Seeds	11.8	34.5	60.0	61.8*
DynaGraze II	Dyna_Gro Seeds	11.0	34.8	59.5	61.4
FirstGraze	Dyna_Gro Seeds	12.2	34.9	58.8	61.4
SP7106 BMR	Sorghum Partners	12.6	35.0	59.2	61.2
SugarGraze II	Coffey Seed	11.3	35.2	59.4	60.9
HyGain	Turner Seed	11.6	35.3	59.8	60.9
F75FS13	Dyna_Gro Seeds	11.0	35.5	60.8	60.6
Sordan Headless	S&W Seed Company	11.6	35.5	60.2	60.6
SuperSweet 10	Dyna_Gro Seeds	9.7	35.5	60.5	60.6
Sordan 79	S&W Seed Company	9.1	36.3	60.9	59.8
Mean		12.1	34.6	59.2	61.7
CV,%		11.7	3.5	2.9	2.2
LSD,0.05		2.0	1.7	2.5	1.9

Table 50. Quality values of pearl millet varieties sown May 27, 2020, at Lexington, Kentucky (samples taken at first harvest on July 17, 2020, and ranked by TDN).

Variety	Proprietor/Distributor	CP	ADF	aNDF	TDN
Commercial Varieties-Available for Farm Use					
SS1562M	Southern States	10.4	37.7	66.5	58.2*
Epic BMR	Coffey Seed	9.9	38.2	67.9	57.6*
SS635	Southern States	9.9	38.9	67.2	56.9*
Pennleaf Hybrid	Pennington Seed	9.9	39.0	66.0	56.7*
Prime360	Byron Seed	9.6	39.3	68.5	56.4*
Tifleaf III Hybrid	Gayland Ward Seed	8.7	39.8	67.3	55.8
Wonderleaf	Advanta Seed/Ramer Seed	9.7	40.1	68.9	55.5
Exceed BMR	Coffey Seed	9.4	40.1	69.5	55.4
PP102M Hybrid	Cisco Seeds	8.7	40.3	69.0	55.2
Leafy22 Hybrid	Turner Seed	9.1	40.5	68.4	55.1
SweetSummer	Cisco Seeds	9.0	40.6	69.7	54.9
PearlMil	Dyna-Gro Seeds	9.6	40.7	68.6	54.8
Millex32	S&W Seed Company	7.8	43.2	72.0	52.1
Experimental Varieties					
LeafyTR7	Coffey Seed	10.1	39.1	68.2	56.6*
LeafyTR9	Coffey Seed	9.8	39.3	68.5	56.4*
18183	Gayland Ward Seed	8.2	41.3	69.6	54.2
Mean		9.4	39.9	68.5	55.7
CV,%		15.0	3.8	3.0	3.0
LSD,0.05		2.0	2.1	2.9	2.4

Table 51. Quality values of forage sorghum varieties sown May 28, 2020, at Lexington, Kentucky (samples taken on September 18, 2020, at harvest and ranked by TDN).

Variety	Proprietor/Distributor	CP	ADF	NDF	TDN
GW400 BMR	Gayland Ward Seed	5.6	28.7	49.4	68.2*
F74FS72 BMR	Dyna-Gro Seed	6.0	28.8	48.7	68.2*
Supersile 30	Dyna-Gro Seed	4.5	29.1	49.0	67.8*
Ensilemaster	Caudill Seed	5.2	29.3	49.4	67.5*
SS304	Sorghum Partners	4.8	29.4	50.2	67.5*
TopTon	Dyna-Gro Seed	3.9	30.0	50.1	66.8*
F74FS23 BMR	Dyna-Gro Seed	5.1	30.0	51.5	66.7*
GW2120	Gayland Ward Seed	5.7	30.5	51.8	66.3*
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics	6.0	30.6	54.8	66.1*
SP3904 BMR (Brachytic Dwarf)	Sorghum Partners	6.5	30.8	52.0	65.9*
ADV7232 BMR	Advanta Seed/Ramer Seed	6.2	30.9	51.5	65.7*
Supersile 20	Dyna-Gro Seed	4.9	30.9	52.6	65.7*
AF7401 BMR	Advanta Seed/Ramer Seed	5.9	31.1	53.0	65.6*
F75FS13	Dyna-Gro Seed	4.9	31.1	52.4	65.5*
SP3905 BMR (Brachytic Dwarf)	Sorghum Partners	5.9	31.2	52.8	65.5*
NK300	Sorghum Partners	3.8	31.2	54.0	65.4*
AF8301	Advanta Seed/Ramer Seed	3.8	31.9	54.2	64.7
FSG114 BMR	Farm Science Genetics	5.3	32.2	53.7	64.3
GW600 BMR	Gayland Ward Seed	4.5	32.2	54.3	64.3
GW475 BMR	Gayland Ward Seed	5.8	32.2	54.7	64.3
SS1515	Southern States	3.8	33.0	54.9	63.5
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	5.7	35.1	59.2	61.0
SS405	Sorghum Partners	4.3	35.2	60.0	60.9
SP1615	Sorghum Partners	3.6	42.6	72.3	52.7
Mean		5.1	31.6	53.6	65.0
CV,%		13.9	5.7	5.7	3.1
LSD,0.05		1.0	2.6	4.3	2.9

Table 52. Quality values of teff varieties sown May 27, 2020 at Lexington, Kentucky (samples taken at the first harvest on July 17, 2020 and ranked by TDN).

Variety[1]	Proprietor/Distributor	CP	ADF	aNDF	TDN
Commercial Varieties-Available for Farm Use					
Corvallis	Smith Seed Services	12.6	34.7	64.0	61.5*
VAT1Brown	Hankins Seed	11.9	35.1	64.2	61.1*
Tiffany	Turner Seed	11.7	35.2	64.9	61.0*
Velvet	–	11.7	35.2	64.5	60.9*
Dessie	Allied Seed	11.7	35.3	63.5	60.9*
SummerDelight	Cisco Seeds	10.6	35.3	65.0	60.9*
HorseCandi	–	11.3	35.3	64.8	60.8*
CW0604	Barenbrug USA	10.9	35.3	65.0	60.8*
Moxie	Barenbrug USA	11.2	35.6	64.6	60.5*
Pharaoh	First Line Seeds	10.7	35.6	66.1	60.5*
Experimental Varieties					
BARETCT	Barenbrug USA	11.5	35.5	65.0	60.6*
F11	Mountain View Seeds	11.6	35.6	65.1	60.6*
Mean		11.4	35.3	64.7	60.8
CV,%		14.4	3.7	2.6	2.4
LSD,0.05		2.4	1.9	2.4	2.1

[1] Check with local dealers for available varieties.

Table 53. Summary of Kentucky sudangrass yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington													Princeton					Mean[3] (#trials)
		08[1,2]	09	10	11	12	13	14	15	16	17	18	19	20	21	17	18	19	20	21	
Variety	Proprietor/KY Distributor	All trials are 1 year yields																			
AS9301 BMR[4]	Advanta Seeds/Ramer Seed					118															–
AS9302 BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seed										124	104	102	112	99	119	117	115	113	104	111(10)
Enorma BMR	Cal/West Seeds			99	94	92	91	83	91	98											93(7)
FSG 1000 BMR	Farm Science Genetics								101	124	110										112(3)
Hayking BMR	Central Farm Supply	111	112	91	97	97	96	92	94	90	80	109				99					97(12)
Monarch V	Public	104	96	102	97	93	98	110	99	82											98(9)
Piper	Public	90	91	97	94	104	105	89	94	85	81	86	93	83	92	86	99	88	82	98	91(19)
ProMax BMR	Ampac Seed	95	101	110	115	96	103	100	111	111	106	102	101	106	107	96	84	87	86	106	101(19)
SP7106	Sorghum Partners														92					90	91(2)
SS130 BMR	Cal/West Seeds			101	103		107	106	110	109	99		93	92	101			97	99	93	101(13)
Trudan Headless	S & W Seed Company							118					112	107	109			113	126	110	114(7)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

Table 54. Summary of Kentucky sorghum-sudangrass yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington														Princeton					Mean[3] (#trials)
		08[1,2]	09	10	11	12	13	14	15	16	17	18	19	20	21	17	18	19	20	21	
		All trials are 1 year yields																			
AS6401 BMR[4]	Advanta Seeds/Ramer Seed												84	107	107			112	106		103(5)
AS6402 BMR	AdvantaSeeds/Ramer Seed					91					78	82	67	94	79	98	98	91	85	81	86(11)
(Brachytic Dwarf)																					
AS6503 BMR	Advanta Seeds/Ramer Seed						96	103	90												96(3)
AS6504 BMR (Dry Stalk)	Advanta Seeds/Ramer Seed										105	103			95	114	112			110	107(6)
Danny Boy II BMR	Dyna-Gro Seeds												117	95	93			110	98	98	102(6)
DynaGraze II	Dyna-Gro Seeds													98	104				122	104	107(4)
FirstGraze	Dyna-Gro Seeds													109	101				118	113	110(4)
FSG 208 BMR	Farm Science Genetics			75																	–
FSG 214 BMR	Farm Science Genetics						99	108	112							109	111				108(5)
FSG 215 BMR	Farm Science Genetics								112												–
Fullgraze II	Dyna-Gro Seeds												100	105	100			108	94	104	102(6)
Fullgraze II BMR	Dyna-Gro Seeds												97	90	96			106	92	102	97(6)
F75FS13	Dyna-Gro Seeds												94	100	93			76	94	89	91(6)
Greengrazer V	Farm Science Genetics			166			122	107	92	103	110										117(6)
GW300 BMR	Gayland Ward Seed				88	78	88	81	73	101	100	98				79					87(9)
HyGain	Turner Seed	104	105	118						110	127	117	121	113	112	130	108	121	110	112	115(14)
KFSugar-Pro55S	Byron Seed										110										–
MS 202 BMR	Farm Science Genetics			106																	–
Nutra-King BMR	Gayland Ward Seed								110	108	96	113	118	103	110	108	114	105	96	97	107(12)
NutraPlus BMR	Public	106	97	94	103	106	109	106	96												102(8)
Sordan Headless	S&W Seed Company							105						110	103				102	100	104(5)
Sordan 79	S&W Seed Company													114	116				123	109	116(4)
Special Effort	Public	109	110	93	94	115	120	91	111												105(8)
SP 4105 BMR	Sorghum Partners													91	88				79	76	84(4)
SP4555 BMR	Sorghum Partners														117					98	108(2)
SP 7106 BMR	Sorghum Partners													90					91		91(2)
SS211	Southern States				104	93	114	103	118	111	121	118				109	87				108(10)
SS220 BMR	Southern States		107	84		112															101(3)
Sugar Graze II	Coffey Seed												110	114	116			110	122	116	115(6)
Surpass BMR	Turner Seed	81	80	64						79	84	75	75	81	84	88	97	74	70	83	80(14)
Super Sugar	Gayland Ward Seed				102	117	107		125	85						91					105(6)
Super Sugar BMR	Gayland Ward Seed									107											–
Super Sugar (Delayed Maturity)	Gayland Ward Seed							101	82		89	104				95	83				92(6)
Super Sugar Sterile	Gayland Ward Seed							94													–
Super Sweet 10	Dyna-Gro Seeds												121	106	117			118	128	113	117(6)
Sweet-For-Ever	Gayland Ward Seed				110	107	81														99(3)
Sweet-For-Ever BMR	Gayland Ward Seed					78	70		77	104	106	83				77	82				85(8)
SweetSix BMR	Gayland Ward Seed						93	101		91											95(3)
SweetSix BMR (Dry Stalk)	Gayland Ward Seed								102		72	107			98	103	108			93	98(7)
SWSB8801	S&W Seed Company														90						
SWSU0029	S&W Seed Company														98					117	
Vita-Cane	Gayland Ward Seed					121															–
Xtragraze BMR	Coffey Seed												79	82	82			70	75	84	79(6)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

Table 55. Summary of Kentucky pearl millet yield trials 2013-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/ KY Distributor	Lexington									Princeton					Mean[3] (#trials)
		2013[1,2]	2014	2015	2016	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
		All trials are 1 year yields														
Epic BMR[4]	Coffey Seed							97	93	83			99	96	87	93(6)
Exceed BMR	Coffey Seed							89	103	81			102	90	107	95(6)
FSG 300 Hybrid	Farm Science Genetics			109	99	109					117					109(4)
FSG 315 BMR (Dwarf)	Farm Science Genetics			101	102	81					97					95(4)
Leafy22 Hybrid	Turner Seed				105	124	108	108	113	119	115	100	116	111	119	113(11)
Millex32	S&W Seed Company								110	131				111	93	111(4)
PearlMil	Dyna-Gro Seed							103	113	120			110	100	110	109(6)
Pennleaf Hybrid	Pennington Seed	93	91	94	96	87	98	100	95	100	84	93		90		93(12)
PP102M Hybrid	Cisco Seeds	93	93	90	79	90	91	97	92	103	77	104	95		81	91(13)
Prime360	Byron Seed							91	90	77			103	96	103	93(6)
SS1562M BMR	Southern States							103	94	72			95	95	90	92(6)
SS501	Southern States	90	99	96	86	94	94				89	96				93(8)
SS635	Southern States	108	112	101	116	94	110	108	105	100	107	115	105	110	98	106(14)
Sweet Summer	Cisco Seeds						86	95	97	97		85	104	91	99	94(8)
Tifleaf III Hybrid	Gayland Ward Seed	116	106	108	116	120	113	119	95	131	114	112	111	101	121	113(14)
Wonderleaf	Advanta Seed/Ramer Seed							98	100	86		100	107	109	92	99(7)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

Table 56. Summary of Kentucky teff yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety[4]	Proprietor/Distributor	Lexington												Princeton					Mean[3] (#trials)
		2008[1,2]	2009	2010	2011	2012	2013	2014	2015	2016	2019	2020	2021	2008	2009	2019	2020	2021	
		All trials are 1 year yields																	
Corvallis	Smith Seed Services	81	101	91	101	96	100	110	96	102	110	116	92	94	112	99	112	92	100(17)
CW060[4]	Barenbrug USA										101	100	101			97	103	86	98(6)
Dessie	Allied Seed	99	92	96	94	95	97	101	104	105	89	109	105	102	87	101	98	127	100(17)
Excaliber	–	109	104	125	108	106	103							109	111				109(8)
Highveld	–	100	121	106	101	109	103	102						111	115				108(9)
HorseCandi	–	99	105	89	108	94	97	80	104	82	86	95	110	91	84	103	104	96	96(17)
Moxie	Barenbrug USA						94	96	105	107	110	105	98			95	101	115	103(10)
Pharaoh	First Line Seeds	105	85	106	106	97	101	93	97	94	102	90	102	95	101	107	104	97	99(17)
Rooiberg	–	112	109	113	108	115	102	88						102	107				106(9)
Summer Delight	Cisco Seeds		91	96	88	93	100	119	101	104	91	90	99		90	99	90	89	96(15)
Tiffany	Turner Seed	102	93	82	93	102	98	104	97	105	110	101	93	102	106	104	98	103	100(17)
VA T1 Brown	Hankins Seed		99	87	91	94	98	104	97	101	100	97	96		89		93	104	96(14)
Velvet	–		100	97	98	95	103	95	99	100	101	98	106		94	96	98	92	98(15)
Witkope	–	93	101	115	103	101	104	107						94	100				102(9)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] Check with local dealers for available varieties.

Table 57. Summary of Kentucky forage sorghum yield trials 2013-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington									Princeton				Mean[3] (#trials)
		2013[1,2]	2014	2015	2016	2017	2018	2019	2020	2021	2017	2019[4]	2019	2021	
		All trials are 1 year yields													
ADVF7232 BMR[5]	Advanta Seed/Ramer Seed							88	92	89		93	84	92	89(5)
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	89	81	101	89			94	84	79		74	83	92	88(9)
AF7203 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed							48			70				59(2)
AF7401 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	76	94	90	83	86	72	85	77	85	116	87	100	73	86(12)
AF8301	Advanta Seed/Ramer Seed							98	103	95		124	85	112	99(5)
Ensilemaster	Caudill Seed	125	90	101	106	111	129	118	129	93	171	77	85	79	118(12)
FSG114 BMR	Farm Science Genetics		94	128	93	125	91	76	91	106	71	89	79		95(10)
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics		51	31	72	81	74	67	77	92	72	60	74		69(10)
F74FS23 BMR	Dyna-Gro Seed							125	94	107		77	76	92	99(5)
F74FS72 BMR	Dyna-Gro Seed							93	87	82		59	117	85	93(5)
F75FS13	Dyna-Gro Seed							107	94	102		109	84	87	95(5)
GW2120	Gayland Ward Seed	117	89	113	84	107	88	102	91	70	85	98	115	81	95(12)
GW400 BMR	Gayland Ward Seed	93	79	128	78	91	88	83	85	67	42			66	82(11)
GW475 BMR	Gayland Ward Seed						80	99	84	82				67	82(5)
GW600 BMR	Gayland Ward Seed		107	111	90		90	100	84	80				101	95(8)
KFFiber-Pro70FS	Byron Seed					65	53				70				63(3)
NK300	Sorghum Partners		126	110	101	116	135	84	104	116	119			93	110(10)
SD1741 BMR	S&W SeedCompany		133	92	103	81	84	95			94				97(7)
SilageKing BMR (Dwarf)	Gayland Ward Seed		48												–
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed			24	74		63			68				87	63(5)
SP1615	Sorghum Partners								125	158		164	170	166	155(5)
SP3904BD BMR (Brachytic Dwarf)	Sorghum Partners								88	97				101	95(3)
SP3905BD BMR (Brachytic Dwarf)	Sorghum Partners								81	72				58	70(3)
SS1515	Southern States							125	105	91		97	75	111	101(5)
SS304	Sorghum Partners								121	114				95	110(3)
SS405	Sorghum Partners		188	183	207	138	202	139	143	188	160	142	171	193	174(11)
Super Sile 20	Dyna-Gro Seed							107	120	140		106	124	149	128(5)
Super Sile 30	Dyna-Gro Seed							121	115	123		129	104	132	119(5)
SWFS8802	S&W SeedCompany									66				64	65(2)
TopTon	Dyna-Gro Seed							131	130	140		84	73	124	120(5)
XF7203 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed					74	73								74(2)
1990	S&W SeedCompany		121	89	118	125	177	113			131				125(7)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] This trial was sprayed with an aphicide and the results are not included in the overall mean.
[5] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

Table 58. Summary of Kentucky crabgrass yield trials 2016-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington					Princeton			Mean[3] (#trials)
		2016[1,2]	2018	2019	2020	2021	2019	2020	2021	
		All trials are 1 year yields								
Impact	Barenbrug USA	107	107	108	108	116	105	100	95	106(8)
Mojo w/YJ[4]	Barenbrug USA				98	109		97	96	100(4)
Quick-N-Big	Noble Foundation	89	85	81	95	78	99	101	100	91(8)
Red River	Noble Foundation	104	108	110	99	97	96	102	108	103(8)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.
[4] YJ = yellow jacket coating on the seed.

Table 59. Summary of Kentucky spring oats yield trials 2015-2021 planted mid March to early April (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/Distributor	2015[1,2]	2016	2017	2018	2019	2020	2021	Mean[3] (#trials)
		All trials are 1 year yields							
BCO18006	Seed-Link Inc.						90		
BCO18007	Seed-Link Inc.						82		
CCSO-102	Caldbeck Consulting				95	102	104		100(3)
CCSO-120 (black hulled)	Caldbeck Consulting				106	106	91	104	102(4)
Common	Central Farm Supply	89							
Excel	Ag. Alumni Seed, IN	120	101	111	107	115	125	105	112(7)
Haywire	Cisco Seeds					81	98		90(2)
Jerry	Caudill Seed	107	93	103	99	95	119	104	103(7)
Persik (black hulled)	Caldbeck Consulting		112	114	127	106	101	98	110(6)
PST-241	Caldbeck Consulting	91	86	86	86				87(4)
PSTSO200	Caldbeck Consulting	102	90	87	79				90(4)
PSTSO-288C	Caldbeck Consulting	91	102	88	97				95(4)
PSTSOKMJ06	Caldbeck Consulting							104	
PSTSOPH26(black Hulled)	Caldbeck Consulting							98	
Reins	Ag. Alumni Seed, IN	94			102		98	86	95(4)
Robust	Ag. Alumni Seed, IN	104	111	117	102	94			106(5)
Saber	Ag. Alumni Seed, IN	104			100	97		96	99(4)
VNK	Public		97	107	101	94	92	105	99(6)
021A17815	Ag. Alumni Seed, IN	97	108	87					97(3)

[1] Establishment year.
[2] Use this summary table as a guide in making variety decisions, but refer to specific tables in this report to determine statistical differences in forage yield between varieties.
[3] Mean only presented when respective variety was included in two or more trials.

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