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2023 Annual Grass Report Warm Season and Cool Season (Cereals)

G.L. Olson, S.R. Smith, C.D. Teutsch, J.C. Henning, and B. Bruening, Plant and Soil Sciences

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.

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*).

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Table 1. Temperature and rainfall at Lexington, Kentucky, in 2021, 2022, and 2023.

	2021				2022				2023[2]			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	34	+3	4.51	+1.65	29	-2	4.93	+2.07	44	+13	6.28	+3.42
FEB	31	-4	4.60	+1.39	38	+3	7.69	+4.48	47	+12	3.73	+0.52
MAR	50	+6	5.12	+0.72	49	+5	4.27	-0.13	48	+4	4.45	+0.05
APR	54	-1	2.72	-1.16	55	0	3.71	-0.17	58	+3	2.36	-1.52
MAY	62	-2	4.34	-0.13	69	+5	3.84	-0.63	65	+1	2.53	-1.94
JUN	73	+1	6.26	+2.60	76	+4	2.10	-1.56	72	0	6.75	+3.09
JUL	75	-1	5.90	+0.90	80	+4	6.46	+1.46	78	+2	5.32	+0.32
AUG	76	+1	6.16	+2.23	77	+2	4.27	+0.34	76	+1	2.40	-1.53
SEP	69	+1	3.03	-0.17	70	+2	1.50	-1.70	71	+3	0.99	-2.21
OCT	62	+5	4.64	+2.10	57	0	0.96	-1.61	61	+4	2.30	-0.27
NOV	43	-2	2.13	-1.26	49	+4	2.1	-1.29				
DEC	47	+11	4.41	+0.43	40	+4	3.46	-0.52				
Total			53.85	+9.30			45.29	+0.74			37.11	-0.07

[1] DEP is departure from the long-term average.
[2] 2023 data is for ten months through October.

Table 2. Temperature and rainfall at Princeton, Kentucky, in 2022 and 2023.

	2021				2022				2023[2]			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	38	+4	5.02	+1.22	32	-2	5.04	+1.24	43	+9	5.11	+1.31
FEB	32	-6	3.64	-0.79	39	+1	7.44	+3.01	46	+8	3.27	-1.16
MAR	52	+5	5.35	+0.41	51	+4	4.85	-0.09	48	+1	6.89	+1.95
APR	56	-3	4.73	-0.07	56	-2	6.41	+1.61	57	-2	2.14	-2.66
MAY	64	-3	4.52	-0.64	68	+1	2.54	-2.42	67	0	4.47	-0.49
JUN	75	0	6.89	+3.04	75	0	3.46	-1.39	72	-3	1.59	-2.26
JUL	77	-1	7.03	+2.74	80	+2	4.75	+0.46	77	-1	11.23	+6.54
AUG	77	0	3.08	-0.93	76	-1	5.85	+1.84	75	-1	8.87	+4.86
SEP	70	-1	2.59	-0.74	69	-2	0.32	-3.01	71	0	2.77	-0.56
OCT	64	+5	2.34	-0.71	57	-2	1.19	-1.86	59	0	3.82	+0.77
NOV	44	-3	1.86	-2.77	47	0	1.45	-3.18				
DEC	50	+11	4.67	-0.37	38	-1	3.95	-1.09				
Total			51.52	+0.39			46.25	-4.88			50.16	+8.70

[1] DEP is departure from the long-term average.
[2] 2023 data is for the ten months through October.

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 37, 38, and 39) 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 (2021-2023) and ten cool-season annual studies (2020-2023) in Lexington. It also summarizes seventeen warm-season annual studies (2021-2023) 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), pearl millet (20), teff (5 for uncoated, 8 for coated), crabgrass (5 for uncoated and 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 2023 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, Forage, and Cover Crop Guide for Kentucky (AGR-18)
- Establishing Forage Crops (AGR-64)
- Warm Season Annual Grasses in Kentucky. (AGR-229)
- 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

G.L. Olson is a research specialist, S.R. Smith and J.C. Henning are Extension professors and forage specialists, C.D. Teutsch is an Extension associate professor and forage specialist, and B. Bruening is a research specialist in small grain variety testing.

Table 4. 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 5. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sudangrass varieties sown May 31, 2022, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 22	Percent Stand Jun 22	Maturity[2]			Plant Height (in)			Yield (tons/acre)				
				Jul 11	Aug 2	Sep 6	Jul 11	Aug 2	Sep 6	Jul 11	Aug 2	Sep 6	Oct 4	Total
Commercial Varieties-Available for Farm Use														
ProMax BMR[3]	Cisco Seeds	4.1	98	31.8	41.8	48.0	38	39	45	0.98	1.44	1.50	0.66	4.58*
TrudanHeadless	S&W Seed Company	4.4	100	29.0	31.0	31.5	31	32	29	1.05	1.58	1.20	0.58	4.42*
Piper	Public	4.3	100	30.3	33.3	46.3	36	38	43	0.99	1.46	1.39	0.52	4.35*
SS130BMR	Cal/West Seeds	4.3	100	31.0	31.3	35.0	38	35	32	1.09	1.39	1.17	0.46	4.10
AS9302BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seed	4.4	100	29.0	38.0	52.5	29	30	31	0.97	1.36	1.14	0.61	4.07
SP7106BMR	Sorghum Partners	3.5	100	29.0	31.0	31.0	26	32	22	0.99	1.58	0.95	0.50	4.03
Mean		4.1	100	30.0	34.4	40.7	33	34	34	1.01	1.47	1.22	0.56	4.26
CV,%		12.5	1	2.5	13.1	8.3	6	7	9	7.57	5.42	11.45	10.79	4.69
LSD,0.05		0.8	1	1.1	6.8	5.1	3	3	4	0.12	0.12	0.21	0.09	0.30

[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 June 6 and July 19 (Total of 120 lb of N/acre).

Table 6. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sudangrass varieties sown May 23, 2023, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 20	Percent Stand Jun 20	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 5	Jul 27	Aug 23	Jul 5	Jul 27	Aug 23	Jul 5	Jul 27	Aug 24	Oct 3	Total
Commercial Varieties-Available for Farm Use														
Piper	Public	4.6	96	31.8	33.3	45.0	44	47	44	1.04	1.49	1.55	1.15	5.23*
Promax BMR[3]	Cisco Seeds	4.8	97	32.5	33.5	45.0	47	47	46	1.06	1.42	1.51	1.23	5.22*
SP7106 BMR	Sorghum Partners	4.9	99	27.5	31.0	39.0	36	36	33	1.39	1.32	1.52	0.99	5.21*
AS9302 BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seeds	5.0	100	31.0	19.0	43.5	36	29	34	1.43	1.01	1.52	1.12	5.09*
Trudan Headless	S&W Seed Company	4.4	97	20.3	27.3	35.0	32	32	30	0.95	1.01	1.11	0.87	3.95
Mean		4.7	98	28.6	28.8	41.5	39	38	37	1.17	1.25	1.44	1.07	4.94
CV,%		7.7	2	14.8	16.5	12.9	5	9	8	14.91	8.11	16.50	18.51	11.88
LSD,0.05		0.6	4	6.5	7.3	8.2	3	5	5	0.27	0.16	0.37	0.31	0.90

[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 June 9, 40lb on July 7 and 30 lb July 27 (Total of 120 lb of N/acre).

Table 7. 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).

Table 8. Dry matter yields and plant height of sudangrass varieties sown June 1, 2022, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Plant Height (in)				Yield (DM tons/acre)				
		Jul 6	Jul 25	Aug 15	Sep 26	Jul 6	Jul 25	Aug 15	Sep 26	Total
Commercial Varieties-Available for Farm Use										
TrudanHeadless	S&W Seed Company	33	32	41	35	1.23	1.45	1.35	1.22	5.26*
Piper	Public	40	39	45	48	1.15	1.46	1.26	1.29	5.16*
ProMax BMR[1]	Cisco Seeds	38	45	49	52	0.83	1.57	1.27	1.48	5.15*
AS9302 BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seed	30	27	38	31	1.31	1.20	1.32	1.28	5.10*
SP7106 BMR	Sorghum Partners	27	33	32	32	0.98	1.58	1.02	1.27	4.85*
Mean		34	35	41	39	1.10	1.45	1.24	1.31	5.11
CV,%		10	13	8	9	22.03	14.26	14.17	15.09	5.91
LSD,0.05		5	7	5	5	0.37	0.32	0.27	0.30	0.46

[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/ A of actual nitrogen on June 6 and July 27 (Total of 120 lb of N/acre).

Table 9. Dry matter yields, stand rating, and plant height of sudangrass varieties sown May 31, 2023, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Percent Stand Jul 24	Plant Height (in)			Yield (DM tons/acre)			
			Jul 24	Aug 22	Oct 20	Jul 24	Aug 22	Oct 20	Total
Commercial Varieties-Available for Farm Use									
AS9302 BMR[1](Brachytic Dwarf)	Advanta Seeds/Ramer Seed	100	38	34	38	1.84	1.12	2.01	4.97*
SP7106 BMR	Sorghum Partners	100	46	36	37	1.86	1.19	1.81	4.86*
TrudanHeadless	S&W Seed Company	100	36	29	37	1.28	0.87	1.58	3.74
Piper	Public	100	52	46	46	1.51	0.93	1.25	3.70
Promax BMR	Cisco Seeds	100	51	45	55	1.20	0.90	1.58	3.68
Mean		100	44	38	42	1.54	1.00	1.65	4.19
CV,%		0	4	6	11	8.15	12.37	11.84	5.52
LSD,0.05		0	3	4	7	0.19	0.19	0.30	0.36

[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/ A of actual nitrogen on June 6 and Aug 9 (Total of 120 lb of N/acre).

Table 10. 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 11. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 31, 2022, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 22	Percent Stand Jun 22	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 11	Aug 2	Sep 6	Jul 11	Aug 2	Sep 6	Jul 11	Aug 2	Sep 6	Oct 4	Total
Commercial Varieties-Available for Farm Use														
Sordan 79	S&W Seed Company	4.8	100	30.5	31.0	41.8	43	36	44	1.63	1.51	1.98	0.49	5.60*
FullGraze II BMR[3]	Dyna-Gro Seed	3.9	95	29.5	31.0	32.0	35	32	38	1.35	1.50	1.92	0.52	5.28*
NutraKing BMR	Public	4.9	100	30.2	31.0	48.4	39	33	38	1.70	1.47	1.57	0.54	5.27*
SugarGraze II	Coffey Seed	4.3	100	30.5	31.3	43.0	40	37	39	1.38	1.52	1.64	0.57	5.10
SP4555BMR	Sorghum Partners	4.8	99	30.0	31.0	45.0	37	33	35	1.49	1.51	1.60	0.50	5.09
Super Sweet 10	Dyna-Gro Seed	4.1	100	30.5	31.0	45.0	37	35	37	1.37	1.43	1.53	0.59	4.92
DannyBoy II BMR	Dyna-Gro Seed	3.6	97	29.0	31.8	32.0	32	36	35	1.26	1.61	1.44	0.60	4.91
FirstGraze	Dyna-Gro Seed	4.4	100	31.0	31.3	43.0	41	35	38	1.42	1.44	1.46	0.49	4.80
SWSU0029	S&W Seed Company	4.4	100	31.0	31.3	45.0	41	36	38	1.42	1.41	1.46	0.49	4.78
SordanHeadless	S&W Seed Company	4.0	77	29.5	32.0	32.0	33	37	40	1.20	1.62	1.40	0.48	4.69
DynaGraze II	Dyna-Gro Seed	4.5	100	29.7	31.3	36.3	37	36	34	1.37	1.35	1.42	0.50	4.64
FullGraze II	Dyna-Gro Seed	3.8	98	30.0	31.0	32.0	40	33	38	1.40	1.29	1.43	0.39	4.51
SWSB8803	S&W Seed Company	3.9	100	29.0	31.0	31.0	29	34	27	1.21	1.62	1.13	0.51	4.47
F75FS13	Dyna-Gro Seed	3.5	99	29.0	31.0	41.5	32	33	32	1.32	1.36	1.26	0.46	4.40
AS6402 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	3.5	95	29.0	31.0	38.3	29	34	28	1.07	1.46	1.09	0.53	4.15
SP4105 BMR	Sorghum Partners	4.3	99	29.0	31.0	31.3	27	33	26	1.07	1.58	1.05	0.45	4.15
SWBD8801	S&W Seed Company	3.9	97	29.5	38.0	42.8	36	32	32	1.33	1.20	1.21	0.31	4.05
XtraGraze BMR	Coffey Seed	3.5	99	29.0	31.0	45.0	34	32	33	1.19	1.37	1.06	0.42	4.04
Surpass BMR	Turner Seed	3.9	99	29.0	31.0	48.0	30	31	29	1.11	1.32	0.95	0.56	3.94
SweetforEver	Gayland Ward Seed	3.4	98	29.0	31.0	31.5	33	34	35	1.16	1.35	0.95	0.29	3.75
Mean		4.1	97	29.7	31.5	39.4	35	34	35	1.33	1.45	1.38	0.48	4.64
CV,%		10.3	10	2.6	5.8	11.4	4	6	7	8.10	7.18	11.13	21.11	7.01
LSD,0.05		0.6	14	1.1	2.6	6.4	2	3	3	0.15	0.15	0.22	0.15	0.46

[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 June 6 and July 19 (Total of 120 lb of N/acre).

Table 12. Dry matter yields, seedling vigor, maturity, and plant height of sorghum-sudangrass varieties sown May 23, 2023, at Lexington, Kentucky.

Variety	Proprietor/ Distibutor	Seedling Vigor[1] Jun 20	Percent Stand Jun 20	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 5	Jul 27	Aug 24	Jul 5	Jul 27	Aug 24	Jul 5	Jul 27	Aug 24	Oct 3	Total
Commercial Varieties-Available for Farm Use														
Sordan79	S&W Seed Company	5.0	100	32.5	31.0	36.8	51	45	45	1.89	1.62	2.09	1.13	6.73*
FullGraze II BMR[3]	Dyna-Gro Seed	4.5	99	31.8	19.3	35.0	46	36	42	1.68	1.20	1.98	1.11	5.97*
Super Sweet 10	Dyna-Gro Seed	4.9	100	31.8	19.0	41.8	44	34	39	1.68	1.19	1.84	1.25	5.96*
NutraKing BMR	Public	4.6	99	31.8	23.5	31.0	46	35	35	1.74	1.33	1.70	1.18	5.95*
SP4555 BMR	Sorghum Partners	4.1	90	28.0	19.5	27.5	45	36	38	1.51	1.42	1.83	1.10	5.86*
SugarGraze II	Coffey Seed	4.9	100	32.3	27.0	38.3	48	36	41	1.68	1.24	1.69	1.03	5.64*
SWSU0029	S&W Seed Company	4.8	100	32.0	19.3	34.5	45	36	38	1.52	1.32	1.62	0.86	5.32*
AS6504 BMR Dry Stalk	Advanta Seed/Ramer Seed	4.4	98	27.5	15.3	30.0	37	32	38	1.27	1.23	1.68	1.03	5.21
ADV6218	Advanta Seed/Ramer Seed	5.0	100	31.5	18.8	38.0	39	32	35	1.54	0.96	1.72	0.93	5.16
F75FS13	Dyna-Gro Seed	4.4	99	31.3	14.5	38.0	41	31	37	1.57	1.01	1.59	0.96	5.13
Sordan Headless	S&W Seed Company	4.4	90	27.8	23.0	29.3	40	38	38	1.37	1.30	1.59	0.83	5.09
SS211	Southern States	4.6	100	32.3	31.0	27.5	47	41	37	1.39	1.32	1.44	0.91	5.07
ADVS6520 BMR SCA[4] PS	Advanta Seed/Ramer Seed	4.4	98	28.0	19.3	29.0	38	36	35	1.26	1.24	1.46	0.95	4.91
SS1652SS	Southern States	4.0	100	31.5	23.3	34.0	39	35	35	1.27	1.25	1.47	0.88	4.87
SP4105BMR	Sorghum Partners	3.6	91	19.8	24.0	22.3	30	35	32	1.07	1.26	1.54	0.91	4.79
SWSB8801	S&W Seed Company	4.6	100	31.5	18.5	31.3	40	32	34	1.45	0.97	1.23	0.71	4.35
ADVS6404 BMR Brachytic Dwarf	Advanta Seed/Ramer Seed	4.3	97	27.3	14.8	22.3	33	30	32	1.09	0.91	1.29	0.91	4.20
XtraGraze II BMR	Coffey Seed	4.6	100	31.5	14.8	36.3	37	29	32	1.26	0.74	1.13	0.64	3.78
Surpass BMR	Public	4.5	97	23.5	14.5	30.8	33	28	33	1.07	0.78	1.18	0.67	3.69
SS220 BMR	Southern States	4.5	98	19.8	14.0	23.0	37	26	25	1.00	0.68	0.82	0.49	2.98
Experimental Varieties														
ADVXS005	Advanta Seed/Ramer Seed	5.0	99	31.8	15.0	20.8	44	31	34	1.72	1.02	1.74	0.79	5.27*
PR23	Allied Seed/Southern States	4.0	100	24.3	14.8	31.0	35	30	32	1.08	0.88	1.23	0.93	4.12
Mean		4.5	98	29	19.7	31.3	41	34	36	1.41	1.13	1.54	0.92	5.00
CV,%		10.4	7	16.4	30.2	34.9	11	11	16	22.67	16.68	28.65	32.61	20.82
LSD,0.05		0.7	10	6.7	8.1	15.4	6	5	8	0.45	0.27	0.62	0.42	1.47

[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.
[4] SCA-tolerant to sugar cane aphid.
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen applicatiion: 50 lb/ A of actual nitrogen on June 9, 40lb on July 7 and 30 lb July 27 (Total of 120 lb of N/acre).

Table 13. Dry matter yields, stand rating, maturity, and plant height of sorghum-sudangrass varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Percent Stand		Maturity[1]	Plant Height (in)				Yield (DM tons/acre)				
		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 14. Dry matter yields and plant height of sorghum sudangrass varieties sown June 1, 2022, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Plant Height (in)				Yield DM tons/acre)				
		Jul 6	Jul 25	Aug 15	Sep 26	Jul 6	Jul 25	Aug 15	Sep 26	Total
Commercial Varieties-Available for Farm Use										
Sordan 79	S&W Seed Company	40	23	41	26	1.32	0.76	1.73	1.27	5.09*
SugarGraze II	Coffey Seed	38	27	37	30	1.18	0.83	1.48	1.39	4.89*
Super Sweet 10	Dyna-Gro Seed	34	25	36	27	1.02	0.79	1.56	1.50	4.88*
SWSU0029	S&W Seed Company	37	26	36	29	1.07	0.80	1.42	1.50	4.79*
Sordan Headless	S&W Seed Company	30	34	34	26	1.12	1.18	1.40	1.04	4.75*
SP4105 BMR[1]	Sorghum Partners	27	28	29	24	1.14	1.22	1.17	1.21	4.73*
NutraKing BMR	Public	35	23	36	24	1.16	0.79	1.44	1.28	4.66*
SWSD8801	S&W Seed Company	27	30	31	23	1.02	1.07	1.24	1.05	4.38
SP4555 BMR	Sorghum Partners	34	25	35	24	1.03	0.77	1.26	1.26	4.33
SWSB8803	S&W Seed Company	29	30	33	26	0.85	0.98	1.17	1.13	4.13
Surpass BMR	Turner Seed	28	27	23	24	0.94	1.02	0.76	1.02	3.75
F75FS13	Dyna-Gro Seed	30	29	23	25	0.86	1.11	0.66	1.10	3.74
SweetforEver	Gayland Ward Seed	32	31	28	21	0.92	0.99	1.05	0.57	3.52
XtraGraze BMR	Coffey Seed	31	26	28	20	0.98	0.79	0.92	0.62	3.31
Mean		32	27	32	25	1.04	0.94	1.24	1.14	4.35
CV,%		7	8	8	11	16.69	11.16	10.06	20.01	7.71
LSD,0.05		3	3	3	4	0.25	0.15	0.18	0.33	0.48

[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 applicatiion: 60 lb/ A of actual nitrogen on June 6 and July 27 (Total of 120 lb of N/acre).

Table 15. Dry matter yields, stand rating, and plant height of sorghum sudangrass varieties sown May 31, 2023, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Percent Stand	Plant Height (in)			Yield (DM tons/acre)			
		Jul 24	Jul 24	Aug 22	Oct 20	Jul 24	Aug 22	Oct 20	Total
Commercial Varieties-Available for Farm Use									
Sordan 79	S&W SeedCompany	100	52	49	45	1.87	1.47	2.24	5.58*
ADV6520 BMR[1] SCA[2] PS	Advanta Seed/Ramer Seed	100	44	42	43	1.59	1.27	2.70	5.55*
Super Sweet 10	Dyna-Gro Seeds	100	46	45	43	1.77	1.39	2.33	5.50*
SS1652SS	Southern States	100	42	43	36	1.33	1.27	2.57	5.17*
SWSU0029	S&W SeedCompany	100	48	51	44	1.60	1.48	2.06	5.15*
Sordan Headless	S&W SeedCompany	100	45	42	44	1.75	1.35	1.90	5.00*
SS211	Southern States	100	47	49	43	1.56	1.33	2.10	4.98*
F75FS13	Dyna-Gro Seeds	100	42	39	40	1.53	1.25	2.09	4.88*
ADV6218	Advanta Seed/Ramer Seed	100	43	38	37	1.76	1.06	1.91	4.72*
SP4555 BMR	Sorghum Partners	100	48	39	35	1.60	1.25	1.67	4.52
SP4105 BMR	Sorghum Partners	100	35	32	32	1.47	1.30	1.46	4.23
ADV6404 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	100	35	35	34	1.38	1.06	1.78	4.22
XtraGraze BMR	Xorghum Partners	100	41	36	38	1.47	0.99	1.66	4.12
Surpass BMR	Sorghum Partners	100	36	33	35	1.50	1.00	1.61	4.11
SWSB8801	S&W SeedCompany	100	39	35	31	1.61	1.18	1.06	3.85
SS220 BMR	Southern States	100	36	28	30	1.50	0.70	1.22	3.42
Experimental Varieties									
ADVXS005	Advanta Seed/Ramer Seed	100	42	37	39	1.85	1.15	2.01	5.01*
PR23	Allied Seed/Souther States	100	39	33	37	1.37	1.07	1.48	3.92
Mean		100	42	39	38	1.58	1.20	1.88	4.66
CV,%		0	7	6	10	11.37	15.96	27.61	13.48
LSD,0.05		0	4	4	5	0.26	0.27	0.74	0.89

[1] BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.
[2] SCA-tolerant to sugar cane aphid.
* 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 24 and Aug 9 (Total of 120 lb of N/acre).

Table 16. 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] Jun 9	Percent Stand		Maturity[2]			Plant Height (in)			Yield (DM tons/acre)			
			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 17. Dry matter yields, seedling vigor, stand rating, and plant height of pearl millet varieties sown May 31, 2022, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 22	Percent Stand Jun 22	Maturity[2]			Plant Height (in)			Yield (DM tons/acre)				
				Jul 20	Aug9	Sep 6	Jul 20	Aug 9	Sep 6	Jul 20	Aug 9	Sep 6	Oct 4	Total
Commercial Varieties-Available for Farm Use														
Tifleaf III	Gayland Ward Seed	4.3	99	29.0	55.0	55.5	25	41	32	1.11	1.60	1.20	1.07	4.99*
PearlMil	Dyna-Gro seed	3.3	98	29.0	56.0	55.5	26	43	35	1.00	1.58	1.13	0.96	4.67*
Wonderleaf	Advanta Seeds/Ramer Seed	3.9	99	38.5	46.3	55.0	35	35	33	1.50	1.34	1.01	0.74	4.60*
SS635	Southern States	3.6	99	29.0	56.0	55.0	26	44	35	1.00	1.49	1.08	0.92	4.49
Millex32	S&W Seed Company	4.4	100	46.8	49.8	57.0	40	35	38	1.52	1.25	1.00	0.68	4.45
Leafy22 Hybrid	Turner Seed	3.5	100	29.0	54.5	55.5	26	43	33	0.94	1.51	1.10	0.87	4.42
Epic BMR[3]	Coffey Seed	3.3	100	29.0	39.0	57.0	25	26	36	1.03	1.31	1.26	0.77	4.37
SS1562 BMR	Southern States	3.9	100	29.0	36.5	56.0	26	26	29	1.07	1.20	1.17	0.86	4.29
Exceed BMR	Coffey Seed	3.8	100	29.0	44.8	58.0	26	26	34	0.99	1.28	1.12	0.84	4.24
Pennleaf Hybrid	Pennington Seed	3.6	99	29.0	50.0	56.0	25	34	33	0.92	1.24	1.14	0.89	4.19
SweetSummer	Cisco Seeds	3.8	100	29.0	41.0	57.0	26	25	34	1.00	1.17	1.18	0.79	4.15
PP102M Hybrid	Cisco Seeds	3.3	91	30.8	50.3	57.5	29	38	32	1.09	1.36	0.93	0.64	4.03
Prime360	Byron Seed	3.0	98	29.0	34.0	56.5	24	26	34	0.81	1.11	1.11	0.81	3.83
Experimental Varieties														
LeafyTR7	Coffey Seed	3.5	99	29.0	47.5	55.5	26	35	32	0.96	1.41	1.14	1.12	4.64*
LeafyTR9	Coffey Seed	3.5	99	29.0	42.3	54.5	25	32	32	0.86	1.26	1.07	0.86	4.04
Mean		3.6	99	30.9	46.9	56.1	27	34	33	1.05	1.34	1.11	0.85	4.36
CV,%		19.6	4	7.1	10.4	2.3	9	8	9	23.61	9.48	9.12	13.91	7.94
LSD,0.05		1.0	6	3.2	7.0	1.9	4	4	4	0.36	0.18	0.14	0.17	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.
[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.

Table 18. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of pearl millet varieties sown May 23, 2023, at Lexington, Kentucky.

Variety	Proprietor/ Distributor	Seedling Vigor[1] Jun 20	Percent Stand Jun 20	Maturity[2]			Plant Height (in)		Yield (DM tons/acre)				
				Jul 10	Jul 31	Aug 23	Jul 20	Jul 31	Jul 10	Jul 31	Aug 24	Oct 3	Total
Commercial Varieties-Available for Farm Use													
Tifleaf III	Gayland Ward Seed	4.4	95	16.8	48.0	49.0	32	42	1.31	1.86	0.78	1.59	5.54*
PearlMil	Dyna-Gro Seed	4.6	93	20.5	46.3	43.5	34	41	1.35	1.68	0.65	1.34	5.02*
Leafy22 Hybrid	Turner Seed	4.5	92	20.8	46.3	46.8	35	41	1.31	1.67	0.67	1.25	4.90*
Millex32	S&W Seed Company	4.9	95	43.5	48.8	50.8	53	38	1.88	1.21	0.77	0.98	4.84*
PP102M Hybrid	Cisco Seeds	4.5	95	28.5	49.5	55.0	42	38	1.52	1.38	0.71	1.06	4.66
Exceed BMR[3]	Coffey Seed	4.8	96	16.0	41.5	53.5	29	31	1.29	1.40	0.79	1.15	4.63
SS635	Southern States	3.8	89	17.0	39.5	46.3	32	41	1.07	1.52	0.63	1.33	4.56
Epic BMR	Coffey Seed	4.1	94	16.0	17.3	49.0	30	29	1.22	1.40	0.86	1.03	4.52
Wonderleaf	Advanta Seeds/Ramer Seed	3.4	82	35.3	34.0	45.0	43	38	1.40	1.36	0.68	1.04	4.49
Pennleaf Hybrid	Pennington Seed	4.1	86	16.5	46.3	47.8	32	39	1.07	1.40	0.68	1.33	4.47
Prime360	Byron Seed	3.8	88	16.5	17.0	49.0	28	28	1.01	1.27	0.84	1.18	4.30
SweetSummer	Cisco Seeds	4.4	96	16.0	24.3	53.5	29	28	1.09	1.24	0.72	1.06	4.10
SS1562 BMR	Southern States	4.3	91	16.3	17.0	49.0	28	28	0.97	1.23	0.82	1.00	4.02
Experimental Varieties													
LeafyTR9	Coffey Seed	3.9	92	16.8	24.8	45.0	32	35	1.19	1.36	0.78	1.42	4.75
LeafyTR7	Coffey Seed	4.4	88	16.5	45.0	43.3	32	38	1.09	1.40	0.69	1.31	4.49
Mean		4.2	91	20.9	36.4	48.4	34	36	1.25	1.43	0.74	1.20	4.62
CV,%		12.6	8	16.2	25.0	7.8	6	8	16.68	12.10	14.54	19.27	11.57
LSD,0.05		0.8	10	4.8	13.0	5.4	3	4	0.23	0.25	0.15	0.33	0.76

[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: 50 lb/ A of actual nitrogen on June 9 and 40lb on July 13 (Total of 90 lb of N/acre).

Table 19. Dry matter yields, maturity, and plant height of pearl millet varieties sown May 25, 2021, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Maturity[1]	Plant Height (in)		Yield (DM tons/acre)[2]		
		Jul 16	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 20. Dry matter yields and plant height of pearl millet varieties sown June 1, 2022, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Plant Height (in)			Yield (DM tons/acre)			
		Jul 20	Aug 18	Sep 26	Jul 20	Aug 18	Sep 26	Total
Commercial Varieties-Available for Farm Use								
Tifleaf III	Gayland Ward Seed	32	44	22	1.38	2.24	1.33	4.94*
PearlMil	Dyna-Gro Seed	35	41	23	1.53	1.76	1.21	4.50*
Wonderleaf	Advanta Seeds/Ramer Seed	38	43	21	1.49	1.95	1.07	4.50*
PP102M Hybrid	Cisco Seeds	42	40	20	1.73	1.66	1.04	4.43*
Leafy22 Hybrid	Turner Seed	34	41	23	1.41	1.85	0.99	4.25
Millex32	S&W Seed Company	52	42	26	2.03	1.19	1.04	4.25
SS635	Southern States	34	41	24	1.27	1.85	1.12	4.24
Exceed BMR[1]	Coffey Seed	26	35	20	1.11	1.91	1.11	4.13
Epic BMR	Coffey Seed	27	32	20	1.27	1.77	1.07	4.11
Prime360	Byron Seed	26	35	22	1.02	1.80	1.22	4.03
SS1562 BMR	Southern States	26	32	19	1.18	1.73	1.06	3.97
SweetSummer	Cisco Seeds	28	32	20	1.23	1.62	1.13	3.97
Experimental Varieties								
LeafyTR7	Coffey Seed	32	41	23	1.36	2.03	1.30	4.67*
LeafyTR9	Coffey Seed	32	38	23	1.51	1.86	1.31	4.67*
Mean		33	38	22	1.39	1.80	1.14	4.34
CV,%		9	7	8	19.95	12.29	17.28	8.95
LSD,0.05		4	4	3	0.40	0.32	0.28	0.56

[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 applicatiion: 60 lb/ A of actual nitrogen on June 6 and July 27 (Total of 120 lb of N/acre).

Table 21. Dry matter yields and plant height of pearl millet varieties sown May 31, 2023, at Princeton, Kentucky.

Variety	Proprietor/ Distributor	Plant Height (in)		Yield (DM tons/acre)		
		Aug 8	Oct 20	Aug 8	Oct 20	Total
Commercial Varieties-Available for Farm Use						
Tifleaf III	Gayland Ward Seed	52	44	2.17	3.03	5.20*
Epic BMR[1]	Coffey Seed	36	45	1.81	3.06	4.87*
SS1562BMR	Southern States	35	42	1.92	2.68	4.60*
Leafy22 Hybrid	Turner Seed	46	46	1.87	2.58	4.45*
SweetSummer	Cisco Seeds	41	39	1.84	2.52	4.36*
Prime360	Byron Seed	36	45	0.79	2.80	3.59*
Millex32	S&W Seed Company	76	52	1.61	1.85	3.46
SS635	Southern States	44	48	0.95	2.48	3.43
PearlMil	Dyna-Gro Seed	48	49	0.75	2.55	3.30
PP102M Hybrid	Cisco Seeds	61	45	1.45	1.48	2.94
Exceed BMR	Coffey Seed	37	40	1.01	1.68	2.68
Wonderleaf	Advanta Seed/Ramer Seed	67	45	1.16	1.37	2.53
Experimental Varieties						
LeafyTR9	Coffey Seed	45	49	1.65	3.22	4.87*
LeafyTR7	Coffey Seed	45	49	1.92	2.87	4.78*
Mean		48	45	1.49	2.44	3.93
CV,%		12	11	46.71	23.44	29.07
LSD,0.05		8	7	1.00	0.82	1.64

[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/A of actual nitrogen on May 24 and Aug 9 (Total of 120 lb of N/acre).

Table 22. 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 23. Dry matter yields, seedling vigor, stand rating, heading date, aphid damage, plant height, and maturity of forage sorghum varieties sown Jun 3, 2022, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jul 1	Percent Stand Jul 1	Heading Date[2]	Sugarcane Aphid injury[3] Sep 19	Plant Height(ft) Sep 19	Maturity[4] Sep 19	Yield (DM tons/acre) Sep 19
Commercial Varieties-Available for Farm Use								
SP1615	Sorghum Partners	4.9	100	did not head	1.5	13.0	29.0	11.07*
F74FS72 BMR[5]	Dyna-Gro Seeds	5.0	98	Aug 26	2.8	9.6	83.0	8.86*
TopTon	Dyna-Gro Seeds	4.6	97	Aug 26	1.8	9.3	77.5	7.39
NK300	Sorghum Partners	4.6	99	Aug 31	2.8	10.5	81.3	7.09
F74FS23 BMR	Dyna-Gro Seeds	4.9	97	Aug 23	1.3	11.0	84.3	7.04
SS304	Sorghum Partners	4.4	98	Aug 30	3.3	10.6	85.0	7.00
Ensilemaster	Caudill Seed	4.9	100	Aug 20	1.5	12.0	80.0	6.95
Super Sile 30	Dyna-Gro Seeds	5.0	100	Aug 23	2.3	11.8	81.3	6.05
SS1515	Southern States	4.9	99	Aug 23	2.5	9.8	81.3	5.97
AF7401 BMR	Advanta Seed/Ramer Seed	4.8	98	Aug 20	2.5	7.8	85.5	5.93
Super Sile 20	Dyna-Gro Seeds	4.6	99	Aug 24	2.5	8.4	80.5	5.67
GW2120	Gayland Ward Seed	4.9	100	Aug 18	1.5	8.6	81.8	5.60
SS405	Sorghum Partners	4.8	86	Aug 25	3.5	12.3	84.3	5.54
AF8301	Advanta Seed/Ramer Seed	4.6	95	Aug 30	1.3	10.1	77.5	5.53
AF7201 BMR Brachytic Dwarf)	Advanta Seed/Ramer Seed	4.8	98	Aug 19	2.0	8.8	83.0	5.53
ADV7232 BMR	Advanta Seed/Ramer Seed	4.5	98	Aug 31	2.5	7.5	83.8	5.32
SP3905BD BMR	Sorghum Partners	4.5	100	Aug 20	3.0	7.3	86.3	5.26
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	4.6	88	Sep 3	4.3	7.0	77.5	5.11
F75FS13	Dyna-Gro Seeds	4.6	97	Aug 31	3.3	9.9	77.5	5.05
SP3904BD BMR	Sorghum Partners	4.3	96	Aug 27	2.0	9.0	80.5	4.74
Experimental Varieties								
Kallisto	KWS SAAT SE&Co. KGaA	5.0	96	Aug 15	2.8	11.5	87.8	7.89
Freya	KWS SAAT SE&Co. KGaA	4.9	90	Aug 26	2.0	8.8	80.0	5.00
Mean		4.7	97	Aug 25	2.4	9.7	81.9	6.36
CV,%		8.4	7	13 days	47.2	23.1	7.4	26.16
LSD,0.05		0.6	10	15 days	1.6	3.2	8.5	2.39

[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: 100 lb/A of actual nitrogen on June 6.

Table 24. Dry matter yields, seedling vigor, stand rating, heading date, plant height, and maturity of forage sorghum varieties sown June 5, 2023, at Lexington, Kentucky.

Variety	Proprietor/Distributor	Seedling Vigor[1] Jun 29	Percent Stand Jun 29	Heading Date[2]	Maturity[3] Sep 18	Plant Height(ft) Sep 18	Yield (DM tons/acre) Sep 19
Commercial Varieties-Available for Farm Use							
SS405	Sorghum Partners	4.5	100	Sep 5	85.0	10.3	7.47*
Ensilemaster	Caudill Seed	2.9	91	Sep 4	81.5	9.6	6.70
SP1615	Sorghum Pertners	3.5	98	did not head	29.0	8.8	6.59
Super Sile 20	Dyna-Gro Seeds	3.5	100	Sep 5	80.0	9.4	6.50
Super Sile 30	Dyna-Gro Seeds	3.8	100	Sep 6	82.0	9.9	6.40
TopTon	Dyna-Gro Seeds	3.1	95	Sep 3	84.5	9.8	5.71
ADV84841G	Advanta Seed/Ramer Seed	3.1	100	Sep 1	84.5	5.5	5.65
AF8301	Advanta Seed/Ramer Seed	4.3	100	Aug 24	85.0	7.1	5.45
SS304	Sorghum Pertners	2.8	98	Sep 6	84.5	9.8	5.39
SP3904BD BMR[4] (Brachytic Dwarf)	Sorghum Pertners	3.5	100	Aug 29	85.0	5.5	5.37
SS1515	Southern States	3.5	100	Aug 26	85.0	6.5	5.31
ADV8322	Advanta Seed/Ramer Seed	3.5	99	Sep 3	82.5	6.3	5.26
F75FS13	Dyna-Gro Seeds	3.6	99	Aug 20	86.0	9.4	5.18
GW2120	Gayland Ward Seed	2.9	98	Aug 19	84.5	8.5	4.93
AF7401 BMR	Advanta Seed/Ramer Seed	3.3	100	Aug 30	85.0	5.5	4.73
NK300	Sorghum Pertners	4.1	100	Aug 23	86.0	6.3	4.69
SP1727 BMR	Sorghum Pertners	3.3	100	Sep 3	84.5	8.6	4.62
F74S23 BMR	Dyna-Gro Seeds	3.3	93	Aug 24	85.0	7.6	4.53
F74S72 BMR	Dyna-Gro Seeds	3.4	99	Aug 30	85.0	5.3	4.52
SP2606 BMR	Sorghum Pertners	3.4	98	Aug 23	85.0	6.6	4.42
ADV7232 BMR	Advanta Seed/Ramer Seed	3.3	100	Sep 2	85.5	5.1	4.27
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	3.8	100	Aug 21	85.5	8.0	4.20
SP3905BD BMR (Brachytic Dwarf)	Sorghum Pertners	2.9	100	Aug 17	85.5	6.3	4.20
SP2707DT	Sorghum Pertners	2.9	92	Sep 4	85.0	5.0	4.16
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	2.9	95	Aug 30	82.0	5.8	3.34
SS2010BDF	Allied Seed/Southern States	2.9	96	Aug 31	85.0	5.0	3.03
Experimental Varieties							
Kallisto	KWS SAAT SE&Co.KGaA	4.6	100	Aug 14	87.5	11.5	5.12
Freya	KWS SAAT SE&Co.KGaA	4.0	100	Aug 12	88.0	9.1	3.70
ADVXS252	Advanta Seed/Ramer Seed	2.6	100	Aug 19	86.5	5.6	3.59
ADVXS242	Advanta Seed/Ramer Seed	2.8	99	Aug 20	87.0	5.6	3.02
Mean		3.4	98	Aug 29	84.8	7.4	4.93
CV,%		12.8	2	3 days	2.9	9.5	10.38
LSD,0.05		0.6	3	3 days	3.4	1.0	0.72

[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 June 9.

Table 25. 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 26. Dry matter yields, lodging, sugarcane aphid injury, plant height, and maturity of forage sorghum varieties sown June 1, 2022, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Lodging[1] Sep 15	Sugarcane Aphid Injury[2] Sep 15	Plant Height (ft) Sep 15	Maturity[3] Sep 15	Yield (DM tons/acre) Sep 16
Commercial Varieties-Available for Farm Use						
SS405	Sorghum Partners	0.0	5.3	13.7	73.5	12.40*
SP1615	Sorghum Partners	0.3	4.4	13.4	29.0	9.10
Supersile 30	Dyna-Gro Seeds	2.8	4.5	12.3	80.0	7.83
AF8301	Advanta Seeds/Ramer Seed	0.8	6.5	8.4	84.0	7.30
SS304	Sorghum Partners	1.5	5.0	12.6	80.0	7.13
Supersile 20	Dyna-Gro Seeds	2.7	5.7	12.2	77.7	6.80
SS1515	Southern States	0.9	5.8	8.2	82.5	6.42
NK300	Sorghum Partners	0.0	6.6	8.0	85.0	6.26
SP3904BD BMR[4]	Sorghum Partners	0.0	4.5	7.1	75.0	6.24
Ensilemaster	Southern Etates	4.0	5.6	12.2	75.0	6.23
F74FS23 BMR	Dyna-Gro Seeds	3.5	6.9	11.4	75.0	5.86
ADV7232 BMR	Advanta Seeds/Ramer Seed	0.0	5.9	6.4	74.5	5.82
AF7201 BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seed	1.3	5.8	9.2	86.5	5.62
AF7401 BMR	Advanta Seeds/Ramer Seed	0.0	4.4	6.8	75.0	5.62
TopTon	Dyna-Gro Seeds	4.5	4.5	13.3	74.5	5.28
F74FS72 BMR	Dyna-Gro Seeds	0.0	6.0	6.2	78.3	5.25
GW2120	Gayland Ward Seed	0.3	5.1	9.2	87.0	5.15
SP3905BD BMR	Sorghum Partners	0.0	5.3	6.9	91.0	4.81
F75FS13	Dyna-Gro Seeds	1.8	6.1	9.3	91.0	4.74
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	0.0	7.1	7.7	76.5	4.68
Experimental Varieties						
Kallisto	KWS SAAT SE&Co.KGaA	0.5	6.1	12.6	91.0	9.83
Freya	KWS SAAT SE&Co.KGaA	0.0	7.8	10.2	91.0	7.21
Mean		1.1	5.7	9.9	78.8	6.63
CV,%		99.0	21.3	8.3	5.2	16.67
LSD,0.05		1.6	1.7	1.2	5.9	1.59

[1] Lodging score based on a scale of 0 to 9 with 0 indicating no lodging and 9 indicating all plants lodged.
[2] Aphid damage score based on a scale of 1 to 9 with 9 indicating all leaves affected by aphids.
[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 June 6.

Table 27. Dry matter yields, maturity, and plant height of forage sorghum varieties sown May 31, 2023, at Princeton, Kentucky

Variety	Proprietor/Distributor	Maturity[1] Sep 20	Plant Height(ft) Sep 20	Yield (DM tons/acre) Sep 21
Commercial Varieties-Available for Farm Use				
SS405	Sorghum Partners	58.5	14.5	10.94*
TopTon	Dyna-Gro Seed	69.3	12.8	10.09*
SP1615	Sorghum Partners	29.0	13.5	9.97*
Supersile 30	Dyna-Gro Seed	77.5	12.6	9.00
Supersile 20	Dyna-Gro Seed	74.0	12.9	8.75
AF8301	Advanta Seed/Ramer Seed	75.0	7.9	8.48
ADV8322	Advanta Seed/Ramer Seed	74.0	8.5	7.90
SS304	Sorghum Partners	77.5	12.0	7.61
Ensilemaster	Caudill Seed	79.0	12.5	7.60
ADV84841G	Advanta Seed/Ramer Seed	70.3	6.9	7.28
F74FS23 BMR[2]	Dyna-Gro Seed	76.5	11.4	7.24
SS1515	Southern States	75.0	7.7	7.11
NK300	Sorghum Partners	75.0	7.7	6.86
SP2707DT	Sorghum Partners	75.0	6.0	6.50
AF7201 BMR (BrachyticDwarf)	Advanta Seed/Ramer Seed	87.0	10.0	6.48
SP1727 BMR	Sorghum Partners	71.3	10.0	6.05
SP2606 BMR	Sorghum Partners	75.0	8.3	5.94
GW2120	Gayland Ward Seed	80.0	9.7	5.72
AF7401 BMR	Advanta Seed/Ramer Seed	75.0	6.6	5.54
F74FS72 BMR	Dyna-Gro Seed	73.0	6.0	5.16
SP3904BD BMR (Brachytic Dwarf)	Sorghum Partners	74.0	6.6	5.11
ADV7232BMR	Advanta Seed/Ramer Seed	71.8	6.7	4.99
SP39605BD BMR (Brachytic Dwarf)	Sorghum Partners	87.0	7.7	4.79
F75FS13	Dyna-Gro Seed	83.5	10.8	4.72
SS2010BDF	Allied Seed/Southern States	85.0	6.0	4.59
SiloPro BMR (Brachytic Dwarf)	Gayland Ward Seed	68.3	8.9	4.21
Experimental Varieties				
Kallisto	KWS SAAT SE&Co.KGaA	83.0	14.0	10.72*
Freya	KWS SAAT SE&Co.KGaA	83.0	12.4	7.87
ADVXS252	Advanta Seed/Ramer Seed	85.5	6.1	3.94
ADVXS242	Advanta Seed/Ramer Seed	85.5	6.0	3.67
Mean		75.1	9.4	6.83
CV,%		5.9	7.4	18.40
LSD,0.05		6.2	1.0	1.77

[1] 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.
[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 24 and June 12 (Total of 120 lb of N/acre).

Table 28. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of teff varieties sown May 31, 2022, at Lexington, Kentucky.

Variety[3]	ProprietorDistributor	Seedling Vigor[1] Jun 22	Percent Stand Jun 22	Maturity[2]			Plant Height (in) Jul 20	Yield (tons/acre)				
				Jul 20	Aug 9	Sep 6		Jul 20	Aug 9	Sep 6	Oct 4	Total
Commercial Varieties-Available for Farm Use												
Corvallis	Smith Seed Services	4.6	100	52.5	52.5	53.5	17	0.95	1.67	0.78	0.30	3.70*
Moxie	Barenbrug USA	4.0	100	52.5	54.0	54.5	19	0.97	1.65	0.79	0.28	3.68*
Tiffany	Barenbrug USA	4.0	100	53.5	54.5	55.0	19	0.97	1.60	0.82	0.28	3.67*
Pharoah	First Line Seeds	4.6	100	50.5	53.0	54.5	18	0.87	1.72	0.76	0.29	3.64*
CW0604	Barenbrug USA	4.8	100	52.5	54.5	54.5	18	0.96	1.59	0.77	0.32	3.64*
Dessie	Allied Seed	4.1	100	51.5	54.0	54.5	17	0.84	1.59	0.82	0.31	3.56*
HorseCandi	–	4.1	100	52.0	53.5	55.0	17	0.88	1.55	0.79	0.30	3.52*
Velvet	–	4.0	100	52.5	55.0	54.0	18	0.76	1.54	0.84	0.27	3.41*
VAT1Brown	Hankins Seed	4.6	100	51.5	54.0	53.5	17	0.85	1.46	0.75	0.30	3.36*
Experimental Varieties												
BARETCT	Barenbrug USA	4.3	100	53.0	53.5	54.5	19	0.99	1.62	0.78	0.25	3.64*
Mean		4.3	100	52.2	53.9	54.4	18	0.90	1.60	0.79	0.29	3.58
CV,%		10.4	0	2.7	2.7	2.0	12	25.75	9.95	14.72	24.59	11.04
LSD,0.05		0.7	1	2.0	2.1	1.6	3	0.34	0.23	0.17	0.10	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] 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 June 6 and July 20 (Total of 120 lb of N/acre).

Table 29. Dry matter yields, seedling vigor, stand rating, and maturity of teff varieties sown May 23, 2023, at Lexington, Kentucky.

Variety[1]	Proprietor/Distributor	Seedling Vigor[2] Jun 20	Percent Stand Jun 20	Maturity[3]				Yield(tons/acre)					
				Jul 6	Jul 27	Aug 23	Sep 20	Jul 6	Jul 27	Aug 24	Sep 20	Oct 27	Total
Commercial Varieties-Available for Farm Use													
VAT1Brown	Hankins Seed	4.3	100	49.8	52.0	56.5	54.5	1.09	1.05	1.21	0.42	0.23	4.00*
CW0604	Barenbrug USA	4.6	100	53.5	54.0	56.0	54.5	1.12	1.01	1.17	0.44	0.24	3.98*
Pharaoh	First Line Seeds	4.6	100	49.3	52.5	56.0	54.5	1.07	1.04	1.12	0.46	0.23	3.93*
SummerDelight	Cisco Seeds	4.6	78	50.3	53.0	56.0	54.5	1.23	1.01	1.13	0.34	0.21	3.92*
Corvallis	Smith Seed Services	4.8	100	49.8	51.5	56.5	55.0	1.24	0.96	1.07	0.40	0.23	3.90*
HorseCandi	–	4.0	94	48.8	52.5	56.0	54.5	0.95	1.11	1.14	0.45	0.22	3.87*
Velvet	–	4.8	99	52.5	53.0	56.0	55.0	1.15	0.97	1.12	0.41	0.20	3.85*
Tiffany	Barenbrug USA	4.0	93	50.0	52.5	56.0	55.0	0.86	1.00	1.21	0.48	0.20	3.75*
Dessie	Allied Seed	4.3	99	47.3	53.5	57.5	55.5	1.08	1.04	1.07	0.30	0.23	3.72*
Moxie	Barenbrug USA	4.3	97	49.0	53.5	58.0	56.0	0.93	0.84	1.14	0.50	0.22	3.63*
Mean		4.4	96	50.0	52.8	56.5	54.9	1.08	1.00	1.14	0.42	0.22	3.86
CV,%		12.6	15	6.7	1.9	1.0	1.7	17.02	12.56	10.34	30.11	9.70	9.11
LSD,0.05		0.8	21	4.9	1.5	0.8	1.3	0.27	0.19	0.17	0.19	0.03	0.52

[1] Check with local dealers for available varieties.
[2] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[3] 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: 50 lb/ A of actual nitrogen on June 9, 40lb on July 7 and 30lb on July 27 (Total of 120 lb of N/acre).

Table 30. Dry matter yields and plant height of teff varieties sown June 1, 2022, at Princeton, Kentucky.

Variety[1]	Proprietor/ Distributor	Plant Height (in)		Yield (tons/acre)		
		Jul 25	Aug 25	Jul 25	Aug 25	Total
Commercial Varieties-Available for Farm Use						
CW0604	Barenbrug USA	24	24	1.40	1.35	2.75*
Moxie	Barenbrug USA	24	24	1.50	1.24	2.74*
Corvallis	Smith Seed Services	25	25	1.38	1.29	2.68*
Pharoah	First Line Seeds	24	22	1.48	1.12	2.59*
Dessie	Allied Seed	26	23	1.49	1.08	2.58*
Tiffany	Barenbrug USA	25	23	1.27	1.26	2.53*
Velvet	–	25	21	1.22	1.13	2.35*
HorseCandi	–	23	23	1.16	1.11	2.27
Mean		25	23	1.36	1.20	2.56
CV,%		4	5	13.88	17.89	11.05
LSD,0.05		1	2	0.28	0.23	0.42

[1] 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 June 6 and July 27 (Total of 120 lb of N/acre).

Table 31. Dry matter yields and stand ratings of teff varieties sown May 31, 2023, at Princeton, Kentucky.

Variety[1]	Proprietor/Distributor	Percent Stand		Yield (tons/acre)		
		Aug 2	Sep 15	Aug 2	Sep 15	Total
Commercial Varieties-Available for Farm Use						
Dessie	Allied Seed	95	93	1.10	1.22	2.32*
Velvet	–	85	86	1.02	0.98	2.01*
Moxie	Barenbrug USA	93	88	0.98	0.95	1.93
Tiffany	Barenbrug USA	84	84	1.00	0.93	1.92
VAT1Brown	Hankins Seed	93	81	0.97	0.84	1.80
SummerDelight	Cisco Seeds	94	79	0.95	0.75	1.70
HorseCandi	–	94	79	0.99	0.67	1.66
CW0604	Barenbrug USA	94	86	0.89	0.72	1.62
Corvallis	Smith Seed Services	94	80	0.85	0.70	1.55
Pharaoh	First Line Seeds	95	66	0.88	0.57	1.45
Mean		92	82	0.96	0.83	1.80
CV,%		12	13	14.01	19.83	13.02
LSD,0.05		16	15	0.20	0.24	0.34

[1] 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 24 and Aug 9 (Total of 120 lb of N/acre).

Table 32. 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] Jun 9	Percent Stand		Maturity[2]				Yield (tons/acre)				
			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 (seeded at 8 lb/A vs 5 lb/A for uncoated 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 33. Dry matter yields, seedling vigor, stand ratings, maturity, and plant height of crabgrass varieties sown May 31, 2022, at Lexington, Kentucky.

Variety	Proprietor/Distibutor	Seedling Vigor[1] Jun 22	Percent Stand		Maturity[2]			Plant Height (in)	Yield (tons/acre)				
			Jun 22	Oct 12	Jul 20	Aug 9	Sep 6	Jul 20	Jul 20	Aug 9	Sep 6	Oct 4	Total
Commercial Varieties-Available for Farm Use													
Mojo w/YJ[3]	Barenbrug USA	3.4	100	100	47.8	57.5	58.0	15	0.71	1.92	1.05	0.21	3.89*
Quick-N-Big Spreader	Dalrymple Farms	4.9	100	100	56.0	57.5	58.0	26	0.88	1.70	0.91	0.15	3.64*
Impact	Barenbrug USA	3.8	100	100	45.0	54.5	56.0	14	0.58	1.76	1.07	0.21	3.61*
Dal's Big River	Dalrymple Farms	4.1	100	100	45.0	57.5	58.5	14	0.68	1.83	0.93	0.16	3.61*
Red River	Noble Foundation	3.9	100	100	45.0	56.0	58.0	14	0.59	1.78	1.03	0.20	3.60*
Quick-N-Big	Noble Foundation	5.0	100	92	57.5	58.0	57.5	29	1.09	1.39	0.69	0.12	3.29
Experimental Varieties													
BARDSiRR	Barenbrug USA	3.8	100	100	34.8	55.0	57.0	14	0.65	1.92	1.05	0.19	3.81*
Mean		4.1	100	99	47.3	56.6	57.6	18	0.75	1.76	0.96	0.18	3.64
CV,%		10.4	1	1	16.8	3.8	1.8	9	14.95	9.04	17.12	29.89	6.39
LSD,0.05		0.6	1	2	11.8	3.2	1.6	2	0.16	0.24	0.24	0.08	0.35

[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 (seeded at 8 lb/A vs 5 lb/A for uncoated 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 June 6 and July 20 (Total of 120 lb of N/acre).

Table 34. Dry matter yields, seedling vigor, stand rating, msturity and plant height of crabgrass varieties sown May 23, 2023, at Lexington, Kentucky.

Variety	Proprietor/Distibutor	Seedling Vigor[1] Jun 20	Percent Stand Jun 20	Maturity[2]			Plant Height(in) Jul 10	Yield (tons/acre)				
				Jul 10	Jul 31	Aug 23		Jul 10	Jul 31	Aug 24	Sep 20	Total
Commercial Varieties-Available for Farm Use												
Quick-N-Big Spreader	Dalrymple Farms	4.8	94	52.0	53.5	58.0	25	1.02	1.17	0.76	0.55	3.50*
Quick-N-Big	Noble Foundation	3.5	84	56.0	56.0	58.0	29	1.20	1.18	0.66	0.44	3.48*
Red River	Noble Foundation	2.5	80	46.3	54.0	58.0	20	0.65	1.04	0.86	0.63	3.18
Dals Big River	Dalrymple Farms	3.0	88	46.3	53.0	58.0	19	0.51	1.07	0.93	0.64	3.15
Mojo w/YJ[3]	Barenbrug USA	2.3	50	45.0	51.8	58.0	20	0.57	0.97	0.79	0.63	2.95
Impact	Barenbrug USA	2.3	63	46.3	49.0	58.0	18	0.55	0.92	0.78	0.67	2.92
Experimental Varieties												
BARDSiRR	Barenbrug USA	2.0	43	45.0	51.3	58.0	18	0.51	0.94	0.70	0.58	2.74
Mean		3.0	74	48.1	52.6	58.0	21	0.71	1.04	0.78	0.59	3.13
CV,%		23.8	15	2.9	5.7	0.0	9	12.15	10.00	11.74	16.33	3.60
LSD,0.05		1.3	20	2.1	4.5	0.0	3	0.18	0.16	0.14	0.14	0.31

[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] YJ=yellow jacket coating on the seed (seeded at 8 lb/A vs 5 lb/A for uncoated 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 June 9 and 40 lb/A on July 13 (Total of 90 lb of N/acre).

Table 35. 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 (seeded at 8 lb/A vs 5 lb/A for uncoated 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 36. Dry matter yields and plant height of crabgrass varieties sown June 1, 2022, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Plant height (in)		Yield (tons/acre)		
		Jul 25	Aug 25	Jul 25	Aug 25	Total
Commercial Varieties-Available for Farm Use						
Impact	Barenbrug USA	23	28	2.02	1.67	3.69*
Dal's Big River	Dalrymple Farms	22	26	1.96	1.64	3.59*
Mojo w/YJ[1]	Barenbrug USA	24	29	1.85	1.71	3.56*
Red River	Noble Foundation	22	26	1.89	1.64	3.52*
Quick-N-Big Spreader	Dalrymple Farms	23	28	1.81	1.54	3.35*
Quick-N-Big	Noble Foundation	24	29	1.86	1.36	3.22*
Mean		23	28	1.90	1.59	3.49
CV,%		6	5	16.14	13.45	9.85
LSD,0.05		2	2	0.46	0.32	0.52

[1] YJ=yellow jacket coating on the seed (seeded at 8 lb/A vs 5 lb/A for uncoated 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 June 6 and July 27 (Total of 120 lb of N/acre).

Table 37. Dry matter yields and plant height of crabgrass varieties sown May 31, 2023, at Princeton, Kentucky.

Variety	Proprietor/Distributor	Plant Height(in) Aug 8	Yield (tons/acre)		
			Aug 8	Sep 15	Total
Commercial Varieties-Available for Farm Use					
Impact	Barenbrug USA	22.8	1.03	2.23	3.26*
Dals Big River	Dalrymple Farms	22.3	1.20	2.03	3.23*
Quick-N-Big Spreader	Dalrymple Farms	21.8	1.14	1.91	3.05*
Red River	Noble Foundation	22.3	1.13	1.91	3.04*
Mojo w/YJ[1]	Barenbrug USA	23.0	0.83	2.20	3.03*
QuickNBig	Noble Foundation	23.3	0.87	1.01	1.88
Mean		23.0	1.03	1.88	2.92
CV,%		5.0	40.10	15.36	14.57
LSD,0.05		2.0	0.62	0.44	0.64

[1] YJ=yellow jacket coating on the seed (seeded at 8 lb/A vs 5 lb/A for uncoated 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 24 and Aug 9 (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 23, 2021, at Lexington, Kentucky.

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Apr 20	Percent Stand Apr 20	Maturity[2]		Yield (tons/acre)		
					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 39. Dry matter yields, seedling vigor, stand rating, plant height, and maturity of cereal crops and annual ryegrass sown March 18, 2022, at Lexington, Kentucky.

Variety	Species	Proprietor/Distibutor	Seedling Vigor[1] May 4	Percent Stand May 4	Plant Height (in) May 30	Maturity[2]		Yield (tons/acre)		
						May 30	Jun 29	May 30	Jun 29	Total
CCSO120	black hulled oat	Caldbeck Consulting	4.6	100	29	48.0	75.0	2.47	0.32	2.79*
Jerry	spring oat	Caudill Seed	4.0	97	29	50.5	75.0	2.38	0.40	2.79*
Excel	spring oat	Ag. Alum. Seed, IN	5.0	99	32	56.5	75.0	2.55	0.23	2.79*
PSTSOPH26	black hulled oat	Caldbeck Consulting	4.1	98	26	51.8	75.0	2.36	0.41	2.77*
PSTSOKMJ06	spring oat	Caldbeck Consulting	4.8	94	29	54.5	75.0	2.13	0.24	2.36
Saber	spring oat	Ag. Alum. Seed, IN	4.5	96	33	58.0	75.0	2.19	0.14	2.33
VNK	spring oat	public	4.8	95	34	56.5	75.0	2.11	0.18	2.29
PSTSBION2018	spring barley	Caldbeck Consulting	4.5	99	32	57.0	50.3	1.95	0.07	2.02
Reins	spring oat	Ag. Alum. Seed, IN	3.8	92	29	57.0	75.0	1.83	0.12	1.94
Elbon	cereal rye	Caudill Seed	4.5	100	48	58.0	64.0	1.54	0.30	1.84
Marshall	annual ryegrass	The Wax Company	3.0	100	32	58.0	63.5	1.41	0.42	1.83
PST20W2020	spring wheat	Caldbeck Consulting	3.8	94	34	58.0	63.3	1.49	0.15	1.64
PSTGIN2022	spring wheat	Caldbeck Consulting	3.5	97	32	58.0	68.0	1.45	0.18	1.63
Pembroke 2021	winter wheat	Ky Agric. Exp. Station	1.0	94	6	29.0	29.0	0.44	0.25	0.68
Mean			4.0	97	30	53.6	67.3	1.88	0.24	2.12
CV,%			12.1	3	6	3.2	7.8	12.89	31.08	10.91
LSD,0.05			0.7	5	3	2.4	7.6	0.35	0.11	0.33

[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 March 18.

Table 40. Dry matter yields, seedling vigor, stand rating, plant height , and maturity of cereal crops and annual ryegrass sown March 8, 2023, at Lexington, Kentucky.

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Apr 28	Percent Stand Apr 28	Plant Height (in)		Maturity[2]		Yield (tons/acre)		
					May 22	Jun 20	May 22	Jun 20	May 22	Jun 20	Total
Excel	spring oat	Ag. Alum. Seed, IN	5.0	100	33	18	51.0	55.3	3.49	0.55	4.05*
Jerry	spring oat	Caudill Seed	4.5	100	30	17	45.0	46.3	3.26	0.63	3.89*
Reins	spring oat	Ag. Alum. Seed, IN	4.9	100	33	20	54.5	56.0	3.21	0.45	3.65*
Saber	spring oat	Ag. Alum. Seed, IN	4.9	100	32	18	55.5	56.0	3.03	0.41	3.44*
PSTSOPH26	black hulled oat	Caldbeck Consulting	4.6	100	26	16	45.0	56.0	2.71	0.71	3.42*
Persik	black hulled oat	Caldbeck Consulting	4.9	100	29	16	45.0	55.0	2.72	0.63	3.35*
VNK	spring oat	public	4.6	99	32	22	51.8	56.0	2.76	0.59	3.34*
Saber LG[3]	spring oat	Ag. Alum. Seed, IN	4.6	100	30	20	55.0	56.5	2.68	0.54	3.22*
PSTSBION2018	spring barley	Caldbeck Consulting	5.0	100	39	17	57.5	56.5	2.74	0.27	3.01*
Elbon	cereal rye	Caudill Seed	4.8	100	55	50	58.0	59.0	2.07	0.74	2.81
Reins LG[3]	spring oat	Ag. Alum. Seed, IN	4.4	100	29	18	56.0	56.5	2.37	0.43	2.80
Marshall	annual ryegrass	the Wax Company	3.1	99	28	28	53.5	58.5	1.70	0.93	2.63
PSTGIN2022	spring wheat	Caldbeck Consulting	4.6	100	29	18	56.0	56.0	2.02	0.50	2.53
PST20W2020	spring wheat	Caldbeck Consulting	4.8	99	30	19	56.0	57.0	2.00	0.22	2.22
Feast II	annual ryegrass	Ampac Seed	3.1	100	14	13	29.0	44.8	1.31	0.68	1.99
Pembroke 2021	winter wheat	Ky. Agric. Exp. Station	2.8	100	12	11	33.0	29.0	0.76	0.46	1.22
Mean			4.4	100	30	20	50.1	53.4	2.42	0.55	2.96
CV,%			8.6	1	12	21	5.3	5.4	30.57	32.33	29.00
LSD,0.05			0.5	1	5	6	3.8	4.1	1.06	0.25	1.23

[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] LG=low germination seed-sown at the same rate as the other oats without adjusting for low germination.
* 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 March 9.

Table 41. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown November 2, 2020, at Lexington, Kentucky (three harvests-early first harvest).

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Dec 8, 2020	Percent Stand		Maturity[2]			Yield (tons/acre)			
				2020 Dec 8	2021 Mar 24	Apr 13/ Apr 30[3]	May 13/ May 28	Jun 1/ Jun 30	Apr 13/ Apr 30	May 13/ May 28	Jun 1/ Jun 30	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 42. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown November 2, 2020, at Lexington, Kentucky (two harvests).

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Dec 8, 2020	Percent Stand		Maturity[2]		Yield (tons/acre)		
				2020 Dec 8	2021 Mar 24	May 21	Jun 23	May 21	Jun 23	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 43. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of cereal crops sown September 29, 2021, at Lexington, Kentucky (early first harvest).

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Oct 22, 2021	Percent Stand		Maturity[2]		Plant Height (in)		Yield (tons/acre)		
				2021 Oct 22	2022 Mar 22	Apr 15/ Apr 29[3]	May 20/ May 31	Apr 15/ Apr 29	May 20/ May 31	Apr 15/ Apr 29	May 20/ May 31	Total
Elbon	rye	Noble Foundation/Caudill Seed	4.8	100	100	45.0	59.5	34	39	3.16	1.59	4.75*
Graze King 90	rye	Cisco Seeds	3.6	100	100	45.0	60.0	34	42	3.02	1.42	4.45*
Wrens Abruzzi	rye	Caudill Seed	4.8	100	100	45.0	60.0	34	38	2.91	1.30	4.22
Forerunner	triticale	Cisco Seeds	3.5	100	100	45.0	55.0	29	17	3.12	0.43	3.55
Trical Flex 719	triticale	Cisco Seeds	3.8	100	100	45.0	56.0	28	15	3.24	0.18	3.42
Pembroke 2021	wheat	KY Agric. Exp. Station	3.6	100	100	45.0	57.5	20	17	2.31	0.49	2.80
Wheat VNK	wheat	Public	3.8	100	100	45.0	57.0	22	14	2.19	0.40	2.59
Mean			4.0	100	100	45.0	57.9	29	26	2.85	0.83	3.68
CV,%			6.1	0	0	0.0	1.8	4	8	9.68	20.42	8.77
LSD,0.05			0.4	0	0	0.0	1.5	2	3	0.41	0.25	0.48

[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: 30 lb/ A of actual nitrogen on September 29 and 60 lb/A on March 3.

Table 44. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown September 29, 2021, at Lexington, Kentucky (late first harvest).

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Oct 20, 2021	Percent Stand		Maturity[2] May 20	Yield (tons/acre) May 20
				2021 Oct 20	2022 Mar 22		
Elbon	rye	Noble Foundation/Caudill Seed	4.5	100	100	80	6.73*
Graze King 90	rye	Cisco Seeds	3.8	100	100	80	6.64*
Wrens Abruzzi	rye	Caudill Seed	4.4	100	100	80	6.61*
Trical Flex 719	triticale	Cisco Seeds	4.3	100	100	75	5.78
Forerunner	triticale	Cisco Seeds	3.3	100	100	75	4.97
Wheat VNK	wheat	Public	3.6	100	100	75	4.68
Pembroke 2021	wheat	KY Agric. Exp. Station	3.6	100	100	75	4.29
Mean			3.9	100	100	77	5.67
CV,%			17.7	0	0	0	9.88
LSD,0.05			1.0	0	0	0	0.83

[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: 30 lb/ A of actual nitrogen on September 29 and 60 lb/A on March 3.

Table 45. Dry matter yields, seedling vigor, stand rating, and maturity of cereal crops sown October 6, 2022, at Lexington, Kentucky (early first harvest).

Variety	Species	Proprietor/Distributor	Seedling Vigor[1] Nov 2, 2022	Percent Stand		Maturity[2]		Plant Height (in)		Yield (tons/acre)		
				2022 Nov 2	2023 Mar 20	Apr 13/ Apr 27[3]	May 19/ May 22	Apr 13/ Apr 27	May 19/ May 22	Apr 13/ Apr 27	May 19/ May 22	Total
Rymin	rye	Caudill Seed	5	100	100	45.0	56.0	20	30	1.49	1.99	3.48*
Forerunner	triticale	Cisco Seeds	4	97	96	45.0	52.0	19	22	1.73	0.82	2.54
Wrens Abruzzi	rye	Caudill Seed	5	100	100	45.0	56.0	27	24	1.45	0.77	2.21
Graze King 90	rye	Cisco Seeds	5	100	100	45.0	56.0	26	26	1.29	0.91	2.20
Wheat VNS	wheat	Public	4	100	97	45.0	53.0	18	17	1.24	0.47	1.70
Trical Flex 719	triticale	Cisco Seeds	4	100	98	45.0	52.5	22	17	1.10	0.53	1.62
Pembroke 2021	wheat	KY Agric. Exp. Station	4	98	94	45.0	54.5	17	18	1.21	0.33	1.54
Mean			4.5	99	98	45.0	54.3	21	22	1.36	0.83	2.19
CV,%			2.4	1	2	0.0	2.5	15	13	31.98	16.26	22.67
LSD,0.05			0.2	2	3	0.0	2.0	5	4	0.64	0.20	0.74

[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: 80 lb/ A of actual nitrogen on March 1 and 40 lb/A on Apr 19.

Table 46. Dry matter yields, seedling vigor, stand rating, maturity, and plant height of cereal crops sown October 6, 2022, at Lexington, Kentucky (late first harvest).

Variety	Species	Proprietor/ Distributor	Seedling Vigor[1] Nov 2, 2022	Percent Stand		Maturity[2] May 18/ May 22[3]	Plant Height (in) May 18/ May 22	Yield (tons/acre)		
				2022 Nov 2	2023 Mar 20			May 18/ May 22	Jun 14	Total
Trical Flex 719	triticale	Cisco Seeds	4.3	100	99	75	59	5.31	0.02	5.32*
Rymin	rye	Caudill Seed	5.0	100	100	75	55	4.54	0.07	4.61*
Graze King 90	rye	Cisco Seeds	5.0	100	100	75	49	4.47	0.11	4.58*
Wrens Abruzzi	rye	Caudill Seed	5.0	100	100	75	53	4.26	0.20	4.46*
Forerunner	triticale	Cisco Seeds	4.1	99	98	75	53	4.01	0.03	4.04*
Wheat VNS	wheat	Public	4.0	100	97	75	33	3.88	0.05	3.93
Pembroke 2021	wheat	KY Agric. Exp. Station	4.0	100	100	75	31	3.90	0.02	3.92
Mean			4.5	100	99	75	48	4.34	0.07	4.41
CV,%			3.4	1	1	0	11	21.59	63.62	20.98
LSD,0.05			0.2	1	2	0	8	1.39	0.07	1.37

[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.
[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: 80 lb/ A of actual nitrogen on March 1 and 40 lb/A on Apr 19.

Table 47. 2023 Kentucky Wheat Variety Forage / Cover Crop Trial.

Variety	Milk Stage Dry Matter (tons/a)		Cover Crop* Canopy (%)	Head Type
	2023	2022-23	2023	
X11-0120-12-4-3	5.45	5.32	38	Smooth
KAS 23X01	5.45		39	Bearded
AgriMAXX 513	5.33	5.25	46	Bearded
AgriMAXX EXP 2301	5.28		37	Bearded
AgriMAXX 514	5.27	4.89	34	Bearded
AgriMAXX 516	5.26	4.92	40	Bearded
CROPLAN CP8022	5.23	4.74	32	Bearded
KWS459	5.20		47	Bearded
X14-1205-147-13-5	5.18		37	Smooth
Dyna-Gro 9151	5.16	4.87	37	Bearded
AgriMAXX 505	5.15	4.88	37	Bearded
AgriMAXX 525	5.15	5.28	36	Bearded
GROWMARK FS 600	5.13	4.86	36	Bearded
AgriMAXX EXP 2302	5.12		40	Smooth
KWS482	5.11		31	Bearded
GROWMARK FS WX23A	5.10		37	Bearded
KWS490	5.10		40	Bearded
GROWMARK FS 624	5.09	4.87	38	Smooth
X11-0039-1-17-5	5.06	4.85	38	Smooth
X14-1008-92-13-3	5.06		35	Bearded
X14-1107-182-13-3	5.05		42	Bearded
GROWMARK FS 617	5.04	4.98	36	Bearded
Dyna-Gro 9422	5.03	5.18	36	Bearded
X14-1049-27-10-1	5.03		45	Bearded
PEMBROKE 2014	5.03	4.56	43	Bearded
KAS Washington	5.02	4.92	35	Bearded
X14-1147-131-6-3	5.02		43	Smooth
GROWMARK FS 745	5.01	4.81	31	Bearded
PEMBROKE 2016	4.99	4.48	42	Bearded
Dyna-Gro 9172	4.98	4.90	32	Bearded
CROPLAN CP8045	4.93	4.76	33	Bearded
USG 3352	4.92	4.46	34	Bearded
GROWMARK FS WX23B	4.91	4.98	40	Bearded

(continued).

Table 47. (continued).

Variety	Milk Stage Dry Matter (tons/a)		Cover Crop* Canopy (%)	Head Type
	2023	2022-23	2023	
Dyna-Gro 9231	4.90	5.38	36	Bearded
USG 3783	4.90	4.76	41	Bearded
X14-1031-103-4-1	4.88		42	Bearded
X14-1009-84-4-3	4.88		43	Bearded
KAS Monroe	4.87	5.24	34	Bearded
KWS495	4.86		39	Bearded
AgriMAXX 535	4.85		43	Bearded
Revere 2169	4.85	4.48	31	Bearded
USG EXP 3574	4.85		37	Smooth
KWS397	4.85		40	Smooth
PEMBROKE 2021	4.85	4.51	43	Smooth
GROWMARK FS 597	4.84	4.44	40	Bearded
USG 3463	4.83		29	Bearded
Dyna-Gro WX23444	4.83		40	Smooth
USG EXP 3354	4.82		37	Smooth
X14-1147-158-14-5	4.82		44	Bearded
KWS477	4.81		37	Smooth
Dyna-Gro 9393	4.81	4.82	37	Bearded
GROWMARK FS 606	4.80		41	Smooth
CROPLAN CP8081	4.78	4.68	43	Bearded
KWS369	4.78		44	Tip-Awned
Dyna-Gro 9290	4.76		28	Bearded
KWS453	4.76		39	Tip-Awned
AgriMAXX 454	4.75	4.75	44	Bearded
GROWMARK FS 603	4.74	4.66	38	Bearded
X14-1209-141-18-3	4.74		38	Smooth
Truman	4.71	4.50	33	Smooth
X14-1141-172-14-5	4.69		36	Bearded
AgriMAXX 531	4.68		40	Smooth
Go Wheat 4059S	4.68	4.56	35	Smooth
KAS 23X02	4.67		32	Bearded
Go Wheat 6056	4.63	4.53	32	Bearded
CROPLAN CPX92394	4.60		29	Smooth

(continued).

Table 47. (continued).

Variety	Milk Stage Dry Matter (tons/a)		Cover Crop* Canopy (%)	Head Type
	2023	2022-23	2023	
AgriMAXX 511	4.60	4.62	44	Bearded
USG 3472	4.58	4.46	34	Bearded
GROWMARK FS 623	4.54	4.37	39	Smooth
USG 3234	4.43		36	Smooth
KAS Reagan	4.39	4.85	39	Bearded
Dyna-Gro 9120	4.35	4.67	36	Bearded
AgriMAXX 503	4.31	4.30	34	Smooth
CROPLAN CP8224	4.30		37	Smooth
Dyna-Gro 9481	4.23		27	Smooth
KWS472	4.16		38	Bearded
Average	4.88	4.77	38	
C.V. (%)	10.50	9.99	16	
LSD (0.10)	0.85	0.55	11	

Location: Bluegrass Region - Fayette Co.
Planting date: 10-8-2022; conventional tillage.
Dry matter yield harvest date at milk stage: 5-25-2023.
* Winter Cover Crop / Grazing biomass estimate (% Canopy coverage using Canopeo app): measured: 1-10-2023.

Originally appeared in PR-831, 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,5		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 2008-2023 (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	22	23	17	18	19	20	21	22	23	
		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	96	103	119	117	115	113	104	100	119	109(14)
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	102	106	86	99	88	82	98	101	88	93(23)
ProMax BMR	Ampac Seed	95	101	110	115	96	103	100	111	111	106	102	101	106	107	108	106	96	84	87	86	106	101	88	101(23)
SP7106 BMR	Sorghum Partners														92	95	105					90	95	116	99(6)
SS130 BMR	Cal/West Seeds			101	103		107	106	110	109	99		93	92	101	96				97	99	93			100(14)
Trudan Headless	S & W Seed Company							118					112	107	109	104	80			113	126	110	103	89	106(11)

[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 2008-2023 (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	22	23	17	18	19	20	21	22	23	
		All trials are 1 year yields																							
ADV6218	Advanta Seeds/Ramer Seed																104							101	103(2)
ADVS6404 BMR (Brachytic Dwarf)	Advanta Seeds/Ramer Seed																84							90	87(2)
ADVS6520 BMR SCA PS	Advanta Seeds/Ramer Seed																99							118	109(2)
AS6401 BMR[4]	Advanta Seeds/Ramer Seed												84	107	107					112	106				103(5)
AS6402 BMR (Brachytic Dwarf)	AdvantaSeeds/Ramer Seed					91					78	82	67	94	79	89		98	98	91	85	81			86(12)
AS6503 BMR	Advanta Seeds/Ramer Seed						96	103	90																96(3)
AS6504 BMR (Dry Stalk)	Advanta Seeds/Ramer Seed										105	103			95		105	114	112			110			106(7)
Danny Boy II BMR	Dyna-Gro Seeds												117	95	93	106				110	98	98			102(7)
DynaGraze II	Dyna-Gro Seeds													98	104	100					122	104			106(5)
FirstGraze	Dyna-Gro Seeds													109	101	103					118	113			109(5)
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	97				108	94	104			101(7)
Fullgraze II BMR	Dyna-Gro Seeds												97	90	96	114	120			106	92	102			102(8)
F75FS13	Dyna-Gro Seeds												94	100	93	95	103			76	94	89	86	104	93(10)
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	114	119	108	114	105	96	97	107		108(15)
NutraPlus BMR	Public	106	97	94	103	106	109	106	96																102(8)
Sordan Headless	S&W Seed Company							105						110	103	101	102				102	100	109	107	104(9)
Sordan 79	S&W Seed Company													114	116	121	135				123	109	117	119	119(8)
Special Effort	Public	109	110	93	94	115	120	91	111																105(8)
SP 4105 BMR	Sorghum Partners													91	88	89	96				79	76	109	90	90(8)
SP4555 BMR	Sorghum Partners														117	110	118					98	100	96	105(6)
SP 7106 BMR	Sorghum Partners													90							91				91(2)
SS211	Southern States				104	93	114	103	118	111	121	118					102	109	87					106	107(12)
SS220 BMR	Southern States		107	84		112											60							73	87(5)
SS1652SS	Southern States																98							110	104(2)
Sugar Graze II	Coffey Seed												110	114	116	110	113			110	122	116	112		114(9)
Surpass BMR	Turner Seed	81	80	64						79	84	75	75	81	84	85	74	88	97	74	70	83	86	88	80(118)
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	106	120			118	128	113	112	117	116(10)
Sweet-For-Ever	Gayland Ward Seed				110	107	81									81							81		92(5)
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	87	87						101	82	89(5)
SWSB8803	S&W Seed Company															96							95		96(2)
SWSU0029	S&W Seed Company														98	103	107					117	110	110	108(6)
Vita-Cane	Gayland Ward Seed					121																			–
Xtragraze BMR	Coffey Seed												79	82	82	87	76			70	75	84	76	88	80(10)

[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 2013-2023 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington											Princeton							Mean[3] (#trials)
		13[1,2]	14	15	16	17	18	19	20	21	22	23	17	18	19	20	21	22	23	
		All trials are 1 year yields																		
Epic BMR[4]	Coffey Seed							97	93	83	100	98			99	96	87	96	132	98(10)
Exceed BMR	Coffey Seed							89	103	81	97	100			102	90	107	97	73	94(10)
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	101	106	115	100	116	111	119	99	120	111(15)
Millex32	S&W Seed Company								110	131	102	105				111	93	99	94	106(8)
PearlMil	Dyna-Gro Seed							103	113	120	107	109			110	100	110	105	89	107(10)
Pennleaf Hybrid	Pennington Seed	93	91	94	96	87	98	100	95	100	96	97	84	93		90				94(14)
PP102M Hybrid	Cisco Seeds	93	93	90	79	90	91	97	92	103	92	101	77	104	95		81	104	80	92(17)
Prime360	Byron Seed							91	90	77	88	93			103	96	103	94	97	93(10)
SS1562M BMR	Southern States							103	94	72	98	87			95	95	90	93	125	95(10)
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	103	99	107	115	105	110	98	99	93	105(18)
Sweet Summer	Cisco Seeds						86	95	97	97	95	89		85	104	91	99	93	118	96(12)
Tifleaf III Hybrid	Gayland Ward Seed	116	106	108	116	120	113	119	95	131	114	120	114	112	111	101	121	116	141	115(18)
Wonderleaf	Advanta Seed/Ramer Seed							98	100	86	105	97		100	107	109	92	105	69	97(11)

[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 2008-2023 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety[4]	Proprietor/Distributor	Lexington													Princeton							Mean[3] (#trials)
		08[1,2]	09	10	11	12	13	14	15	16	19	20	21	22	23	08	09	19	20	21	22	23	
		All Trials are 1 year yields																					
Corvallis	Smith Seed Services	81	101	91	101	96	100	110	96	102	110	116	92	103	101	94	112	99	112	92	105	86	100(21)
CW0604	Barenbrug USA										101	100	101	102	103			97	103	86	107	90	99(10)
Dessie	Allied Seed	99	92	96	94	95	97	101	104	105	89	109	105	100	96	102	87	101	98	127	101	129	101(21)
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	98	100	91	84	103	104	96	89	92	96(21)
Moxie	Barenbrug USA						94	96	105	107	110	105	98	103	94			95	101	115	107	107	103(14)
Pharaoh	First Line Seeds	105	85	106	106	97	101	93	97	94	102	90	102	102	102	95	101	107	104	97	101	81	98(21)
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		102		90	99	90	89		95	96(17)
Tiffany	Turner Seed	102	93	82	93	102	98	104	97	105	110	101	93	103	97	102	106	104	98	103	99	107	100(21)
VA T1 Brown	Hankins Seed		99	87	91	94	98	104	97	101	100	97	96	94	103		89		93	104		100	97(17)
Velvet	–		100	97	98	95	103	95	99	100	101	98	106	95	100		94	96	98	92	92	112	98(19)
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 2013-2023 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington											Princeton						Mean[3] (#trials)
		13[1,2]	14	15	16	17	18	19	20	20	22	23	17	19[4]	19	21	22	23	
		All Trials are 1 year yields																	
ADV7232 BMR[5]	Advanta Seed/Ramer Seed							88	92	89	84	84		93	84	92	91	73	89(7)
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	89	81	101	89			94	84	79	87	82		74	83	92	87	94	88(11)
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	94	93	116	87	100	73	87	81	87(14)
AF8301	Advanta Seed/Ramer Seed							98	103	95	87	107		124	85	112	114	123	99(7)
ADV8322	Advanta Seed/Ramer Seed											105						115	
ADV84841G	Advanta Seed/Ramer Seed											111						106	
Ensilemaster	Caudill Seed	125	90	101	106	111	129	118	129	93	110	131	171	77	85	79	97	111	110(14)
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	111	89		77	76	92	91	105	99(7)
F74FS72 BMR	Dyna-Gro Seed							93	87	82	140	89		59	117	85	82	75	98(7)
F75FS13	Dyna-Gro Seed							107	94	102	80	102		109	84	87	79	69	90(7)
GW2120	Gayland Ward Seed	117	89	113	84	107	88	102	91	70	88	97	85	98	115	81	80	83	94(14)
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	112	92	119			93	97	100	109(12)
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	81	65				87	73	61	67(7)
SP1615	Sorghum Partners								125	158	175	129		164	170	166	142	145	156(6)
SP1727	Sorghum Partners											91						88	
SP2606	Sorghum Partners											87						86	
SP2707DT	Sorghum Partners											82						95	
SP3904BD BMR (Brachytic Dwarf)	Sorghum Partners								88	97	75	105				101	97	74	92(5)
SP3905BD BMR (Brachytic Dwarf)	Sorghum Partners								81	72	83	82				58	75	70	74(5)
SS1515	Southern States							125	105	91	94	104		97	75	111	100	103	100(7)
SS2010BDF	Allies Seed/Southern States											60						67	
SS304	Sorghum Partners								121	114	110	106				95	111	111	110(5)
SS405	Sorghum Partners		188	183	207	138	202	139	143	188	87	146	160	142	171	193	193	174	168(13)
Super Sile 20	Dyna-Gro Seed							107	120	140	90	127		106	124	149	106	127	119(7)
Super Sile 30	Dyna-Gro Seed							121	115	123	96	125		129	104	132	122	131	116(7)
SWFS8802	S&W SeedCompany									66						64			65(2)
TopTon	Dyna-Gro Seed							131	130	140	117	112		84	73	124	82	147	114(7)
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 2016-2023 (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	2022	2023	2019	2020	2021	2022	2023	
		All trials are 1 year yields												
Dal's Big River	Dalrymple Farms						100	99				103	111	103(4)
Impact	Barenbrug USA	107	107	108	108	116	100	91	105	100	95	106	112	105(12)
Mojo w/YJ[4]	Barenbrug USA				98	109	108	92		97	96	102	104	101(8)
Quick-N-Big	Noble Foundation	89	85	81	95	78	91	109	99	101	100	92	64	92(12)
Quick-N-Big Spreader	Dalrymple Farms						101	109				96	104	103(4)
Red River	Noble Foundation	104	108	110	99	97	100	99	96	102	108	101	104	102(12)

[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 2015-2023 (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	2022	2023	Mean3 (#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	111		104(5)
Common	Central Farm Supply	89									
Excel	Ag. Alumni Seed, IN	120	101	111	107	115	125	105	111	113	112(9)
Haywire	Cisco Seeds					81	98				90(2)
Jerry	Caudill Seed	107	93	103	99	95	119	104	111	108	104(9)
Persik (black hulled)	Caldbeck Consulting		112	114	127	106	101	98		93	107(7)
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	94		99(2)
PSTSOPH26 (black hulled)	Caldbeck Consulting							98	110	95	101(3)
Reins	Ag. Alumni Seed, IN	94			102		98	86	77	102	93(6)
Robust	Ag. Alumni Seed, IN	104	111	117	102	94					106(5)
Saber	Ag. Alumni Seed, IN	104			100	97		96	93	96	98(6)
VNK	Public		97	107	101	94	92	105	91		98(7)
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.

2023 Annual Grass Report
Warm Season and Cool Season (Cereals)

12-2023