



2022 Long-Term Summary of Kentucky Forage Variety Trials

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Introduction

Forage crops occupy approximately 7 million acres in Kentucky. Forages provide a majority of the nutrition for beef, dairy, horse, goat, sheep, and wildlife in the state. In addition, forage crops play a positive environmental role in soil conservation, water quality, and air quality. There are more than 60 forage species adapted to the climate and soil conditions of Kentucky. Only 10 to 12 of these species occupy the majority of the acreage, but within these species there is a tremendous variation in varieties.

This publication was developed to provide a user-friendly guide to choosing the best variety for producers based on a summary of forage yield and grazing tolerance trials conducted in Kentucky over the past twenty years. Detailed variety reports and forage management publications are available from your county Extension agent or at the University of Kentucky forage website (<https://forages.ca.uky.edu>) by clicking on the “Forage Variety Trial” link.

How to Interpret the Summary Tables

These tables summarize long-term yield and stand persistence data of commercial varieties that have been entered in the University of Kentucky trials. Except for the alfalfa and tall fescue grazing tolerance trials, the data are listed as a percentage of the mean of the commercial varieties entered in each specific trial. In other words, the mean for each trial is 100 percent; varieties with percentages over 100 yielded better than average, and varieties with percentages less than 100 yielded lower than average. For the alfalfa and tall fescue grazing tolerance trials using cattle, data are listed as a percentage of the grazing tolerant varieties Alfagraze and KY31, respectively. In the horse grazing trials, the data for fescue varieties were expressed as a percentage of endophyte free KY31 instead of the mean of all the commercial varieties. Direct, statistical comparisons of varieties cannot be made using the summary tables, but these data do help to identify varieties for further consideration. Varieties that have performed better than average over many years and at several locations have very stable performance; others may have performed very well in wet years or on particular soil types. These details may influence variety choice, and more information can be found in the yearly reports. See the footnote in each table to determine which yearly report should be referenced.

Species in this Report

Red clover (*Trifolium pratense*) is a high-quality, short-lived, perennial legume that is used in mixed or pure stands for pasture, hay, silage, green chop, soil improvement, and wildlife habitat. This species is adapted to a wide range of climatic and soil conditions and therefore is versatile as a forage crop. Stands of improved varieties are generally productive for two to three years, with the

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highest yields occurring in the year following establishment. Red clover is used primarily as a renovation legume for grass pastures. It is a dominant forage legume in Kentucky because it is relatively easy to establish and has high forage quality and high yield.

White clover (*Trifolium repens*) is a low-growing, perennial pasture legume with white flowers. It differs from red clover in that the stems (stolons) grow along the surface of the soil and can form adventitious roots that may lead to the development of new plants. White clover is classified into ladino, Dutch, and intermediate types. The intermediate types combine the higher yield of ladino with the grazing tolerance of the Dutch types.

Alfalfa (*Medicago sativa*) is the highest yielding, highest quality forage legume grown in Kentucky. It forms the basis of Kentucky's cash hay enterprise and is an important component in dairy, horse, beef, and sheep diets and wildlife habitat. Choosing a good alfalfa variety is a key step in establishing a stand of alfalfa. The choice of variety can impact yield, stand persistence, insect and disease resistance, and grazing tolerance.

Orchardgrass (*Dactylis glomerata*) is a high-quality, productive, cool-season grass that is well adapted to Kentucky conditions. This grass is used for pasture, hay, green chop, and silage, but it requires better management than tall fescue for higher yields, quality, and long stand life. It produces an open, bunch-type sod, making it very compatible with alfalfa or red clover as a pasture and hay crop or as habitat for wildlife.

Tall fescue (*Festuca arundinacea*) is a productive, well-adapted, persistent, soil-conserving, cool-season grass that is grown on approximately 5.5 million acres in Kentucky. Tall fescue is the forage base for most of Kentucky's livestock enterprises, particularly beef cattle, and is used for both hay and pasture. The predominant vari-

ety, KY31, was developed in Kentucky for long-term persistence but contains a fungal endophyte that produces alkaloids detrimental to livestock production and reproductive health. Endophyte-free tall fescue varieties produce no detrimental alkaloids, but UK research shows that they are less persistent than KY31. New novel endophyte tall fescue varieties contain safe endophytes, which enhance stand persistence but cause no detrimental animal symptoms.

Annual ryegrass (*Lolium multiflorum*) and **perennial ryegrass** (*Lolium perenne*) are high-quality, productive, cool-season grasses used in Kentucky. Both have exceptionally high seedling vigor and are highly palatable to livestock. Annual ryegrasses (both Italian and Westerwolds types) are increasingly in use across Kentucky as more winter-hardy varieties are released and promoted. Annual ryegrass is productive for six to eight months when planted early fall (late August/September) and is used primarily for late fall and early to late spring pasture. Perennial ryegrass can be used as a short-lived (2 to 3 years) hay or pasture plant and has growth characteristics similar to tall fescue. It is less persistent than other cool-season grass species. There are both diploid (two sets of chromosomes) and tetraploid (four sets of chromosomes) varieties of perennial ryegrass. Tetraploids have larger tillers and seedheads and wider leaves. Tetraploid types tend to be taller and less dense than diploid types, even in early stages of regrowth. Diploid types produce more tillers, have better stand persistence, and are typically more tolerant to heavy grazing.

Timothy (*Phleum pratense*) is the fourth most widely sown cool-season perennial forage grass used in Kentucky after tall fescue, orchardgrass, and Kentucky bluegrass. Timothy is primarily harvested as hay, particularly for horses. In Kentucky, timothy behaves like a short-lived perennial, with stands usually lasting two years.

Kentucky bluegrass (*Poa pratensis*) is a high-quality, highly palatable, long-lived pasture plant with limited use for hay. It tolerates close, frequent grazing better than most grasses. It has low yields and low summer production and becomes dormant and brown during hot, dry summers. Kentucky bluegrass is best suited for pastures where a dense sod is more important than high-forage production (e.g., horse pastures).

Festuloliums are hybrids between various fescues and ryegrasses with higher quality than tall fescue and improved stand survival over perennial ryegrass. Their use in Kentucky is limited because they do not survive as long as tall fescue. Newer varieties show promise where high quality and yield are more important than long-term persistence.

Bromegrasses have several advantages over tall fescue, including retaining quality as they mature and better growth during dry weather, but they are generally less well adapted in Kentucky. Smooth bromegrass (*Bromus inermis*) is a perennial pasture and hay grass native to Europe. It has creeping underground stems or rootstocks from which the leafy stems arise. Smooth bromegrass is palatable to all classes of livestock, from emergence to the heading stage. Meadow bromegrass (*Bromus biebersteinii*) is a native of southeastern Europe and the adjacent Near East. It resembles smooth bromegrass but has only short rhizomes or none at all. Meadow bromegrass is densely tufted and has a similar growth habit to tall fescue. Hybrid bromegrasses are a cross between smooth and meadow bromegrasses. Alaska bromegrass (*Bromus sitchensis*), also called Sitka bromegrass, is a long-lived perennial bunchgrass that will actively grow at moderate rates during the

spring and summer season. It does not spread by rhizomes and is more suited to environments with harsh winters. Prairie bromegrass (*Bromus willdenowii*) is a tall, cool-season, leafy short-lived, perennial, deep-rooted bunchgrass. It was introduced from South America. Seedheads are produced throughout the growing season. Prairie bromegrass can maintain productive stands for several years if at least one growth cycle each year is allowed to go to seed. Some prairie bromegrasses are susceptible to winterkill. Mountain bromegrass (*Bromus marginatus*) is native to North America from Alaska to northern Mexico, where it can be found in many types of habitat. It is a short-lived, perennial, cool-season, sod-forming grass.

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 compared to other sorghum species. Sudangrass regrows quickly after harvest and can be harvested several times during summer and early fall.

Sorghum-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 6 to 12 feet tall 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 are available which are leafier and better suited for grazing.

The brown midrib or BMR trait is an outward expression of a naturally occurring 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 desirable for animal production. Therefore, it is advisable 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 love-grass (*Eragrostis tef*), is a warm-season annual grass native to Ethiopia and 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 which 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.

Important Selection Considerations

Local adaptation and seasonal yield. Choose a variety/species that is adapted to your region of Kentucky, as indicated by good performance across years and locations in replicated yield trials. Also, look for varieties that are productive in the desired season of use. For management recommendations, check with your county Extension agent or see the forage website (<https://forages.ca.uky.edu>).

Seed quality. Buy premium-quality seed that is high in germination and purity and free from weed seed. Buy certified seed or proprietary seed of an improved variety. An improved variety is one that has performed well in independent trials. Other information on the label will include the test date (which must be within the past nine months), the level of germination, and the amount of other crop and weed seed. Order seed well in advance of planting time to assure that it will be available when needed.

Description of the Tests

Yield trials. Plots were seeded at the recommended seeding rate per acre and were planted into a prepared seedbed with a disk drill. Plots were 5 feet by 15 feet in a randomized complete block design with four replications. Cool season perennial grass plots were typically fertilized with 60 pounds of actual N per acre in March, after the first cutting, and again in late summer for a total of up to 180 pounds per acre per season. Warm season grasses were fertilized with about 120 pounds of actual N per acre, depending on the species. No nitrogen was applied to the legume trials. Other fertilizers (lime, P, and K) were applied as needed according to the University of Kentucky soil test recommendations. The tests were harvested using a sickle-type forage plot harvester at timings appropriate for the specific crop. Fresh weight samples were taken at each harvest to calculate percent dry matter production. Management practices for establishment, fertility, weed control, and harvest timing were in accordance with University of Kentucky recommendations.

Grazing trials. Plots were 5 feet by 15 feet in a randomized complete block design, with each variety replicated six times. Plots were seeded at the recommended seeding rate per acre and were planted into a prepared seedbed using a disk drill. Grazing was continuous from April to October.

Plots were grazed down to below 4 inches quickly and were maintained at 2 to 4 inches (sometimes less) for the remainder of the grazing season. Supplemental hay was fed during periods of slowest growth. Visual ratings of percent stand were made in the fall several weeks after the cattle were removed to determine stand persistence after the grazing season and in the spring prior to grazing to check on winter survival and spring growth. Because trials were seeded in rows, persistence ratings were based on density within a row and not total ground cover. Grass plots were fertilized with 60 pounds of actual N per acre in the spring and 30 to 40 pounds of actual N in early November after cattle or horses were removed from the pasture. Other fertilizers (lime, P, and K) were applied as needed according to the University of Kentucky soil test recommendations. Management practices for establishment, fertility, and weed control were in accordance with University of Kentucky recommendations.

Summary

Selecting a good forage variety is an important first step in establishing a productive stand of forage. Proper management, beginning with seedbed preparation and continuing throughout the life of the stand, is necessary for even the highest-yielding variety to produce to its genetic potential. For more detailed information on yield and grazing tolerance within species, go to individual 2022 reports on the forage website (<https://forages.ca.uky.edu>). See below for specific reports. Reports from 2001 to 2021 can be

found in the archive website (<https://forages.ca.uky.edu/content/archived-research-reports>).

Yield and Grazing Tolerance Reports

Individual forage species reports can be found at https://forages.ca.uky.edu/variety_trials.

- 2022 Alfalfa Report (PR-817)
- 2022 Red and White Clover Report (PR-816)
- 2022 Orchardgrass Report (PR-818)
- 2022 Tall Fescue and Bromegrass Report (PR-819)
- 2022 Timothy and Kentucky Bluegrass Report (PR-820)
- 2022 Annual and Perennial Ryegrass and Festulolium Report (PR-821)
- 2022 Alfalfa and Red and White Clover Grazing Tolerance Report (PR-822)
- 2022 Cool-Season Grass Grazing Tolerance Report (PR-823)
- 2022 Cool-Season Grass Horse Grazing Report (PR-824)
- 2022 Annual Grass Report: Warm Season and Cool Season (Cereals) (PR-825)
- 2022 Long-Term Summary of Kentucky Forage Variety Trials (PR-826)

For more information

The following comprehensive bulletins may be especially useful:

- Grain and Forage Crop Guide for Kentucky (AGR-18)
- Establishing Forage Crops (AGR-64)
- Rotational Grazing (ID-143)
- Extending Grazing and Reducing Stored Feed Needs (AGR-199)
- Forage Identification and Use Guide (AGR-175)
- Lime and Fertilizer Recommendations (AGR-1)
- 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)
- Growing Wheat for forage (AGR-263)

About the Authors

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Table 3. Summary of Kentucky alfalfa yield trials 2004-2022 (yield shown as a percentage of the mean of the commercial varieties in the test).

Variety	Proprietor	Variety Characteristics ¹										Lexington										Princeton						Mean ⁵ (# trials)		
		FD	Disease Resistance ²					04 ^{3,4} 5yr ⁶	06 7yr	08 6yr	11 6yr	12 6yr	15 5yr	16 6yr	17 6yr	18 5yr	19 4yr	20 3yr	00 3yr	05 5yr	08 5yr	09 6yr	11 4yr	13 3yr						
			Bw	Fw	An	PRR	APH1																		APH2					
A-4440	Producers Choice	4	HR	HR	HR	HR	HR			100								99												100(2)
A 5225	Producers Choice	5	HR	HR	HR	HR	R	R		104											107									106(2)
Adrenalin	Brett Young Seeds	4	HR	HR	HR	HR	HR	-														104								-
Alfabar	Barenbrug USA	3	HR	HR	HR	HR	HR/R	-																						-
Alfagraz	America's Alfalfa	3	HR	HR	HR	HR	HR	-																						-
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR	R		99																				85(2)
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR	R														100								99(8)
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR	R																						104(7)
Ameristand 427TQ	America's Alfalfa	4	HR	HR	HR	HR	HR	HR																						104(2)
Anchormate	ProSeed Marketing	-	-	-	-	-	-	-		100																				-
Arc (certified)	Public	4	LR	MR	HR	-	-	-																						-
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR	HR																						90(6)
Baralfa 53HR	Barenbrug USA	5	HR	R	HR	HR	HR	-																						-
Buffalo	Public	-	-	-	-	-	-	-		82	86	80	89																	86(9)
Bulldog-505	Univ. of GA	5	-	HR	-	R	-	-																						97(5)
Calliber	Beck's Hybrids	4	HR	HR	HR	HR	HR	-																						101(5)
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR	-																						104(2)
Contender	Beck's Hybrids	5	HR	HR	HR	HR	HR	-																						101(3)
DKA 43-13	Monsanto	4	HR	HR	HR	HR	HR	-		102																				-
DKA 50-18	Monsanto	5	HR	HR	HR	HR	HR	-		110																				-
DG4210	Crop Production	4	HR	HR	HR	HR	HR	-																						-
Dynagro Everlast	United Agr. Prod.	4	HR	HR	HR	HR	R	-																						-
Enforcer	Southern States	4	HR	HR	HR	HR	HR	-																						-
Evermore	Southern States	5	HR	HR	HR	HR	HR	-																						-
Expedition	NEXGROW	5	HR	HR	R	RR	R	-																						-
Feast +EV	NEXGROW	3	HR	HR	HR	R	HR	-																						-
Fierce	Beck's Hybrids	4	HR	HR	HR	HR	HR	-																						-
FSG 403LR	Farm Sci. Genetics	4	HR	HR	HR	HR	HR	-																						-
FSG 408DP	Allied Seeds	4	HR	HR	HR	HR	R	-																						-
FSG 415BR	Allied Seeds	4	HR	HR	HR	HR	HR	-																						-
FSG 424	Farm Sci. Genetics	4	HR	HR	HR	HR	HR	-																						-
FSG 426	Farm Sci. Genetics	4	HR	HR	HR	HR	HR	HR																						-
FSG 524	Farm Sci. Genetics	5	HR	HR	HR	HR	HR	-																						-
FSG 527	Farm Sci. Genetics	5	HR	HR	HR	HR	HR	-																						-
FSG 528SF	Farm Sci. Genetics	5	HR	R	HR	HR	R	-																						-
GA-409	Lewis Seed Co.	5	HR	R	HR	HR	R	-																						-
GA-497HD	Pref. Alf. Genetics	4	HR	HR	HR	HR	HR	-																						-
GA-535	Pref. Alf. Genetics	5	HR	HR	HR	HR	HR	-																						-
Genoa	NEXGROW	4	HR	HR	HR	HR	HR	-																						-
Gunner	Croplan Genetics	5	HR	HR	HR	HR	HR	-																						-
HVS4220Q	Mountain View Seeds	4	HR	HR	HR	HR	HR	-																						-
Kingfisher 243	Cal/West	5	HR	HR	HR	HR	HR	-																						-
Kingfisher 4020	Legacy Seeds	4	HR	HR	HR	HR	HR	-																						-
L447HD	Legacy Seeds	4	HR	HR	HR	HR	HR	-																						-
L449Aph2	Legacy Seeds	4	HR	HR	HR	HR	HR	HR																						-
L455HD	Legacy Seeds	4	HR	HR	HR	HR	HR	-																						-
Lancer	Allied Seeds	4	HR	HR	HR	HR	HR	-																						-
LegenDairy 5.0	Croplan Genetics	3	HR	HR	HR	HR	HR	-																						-
Mariner III	Allied Seeds	4	HR	HR	HR	HR	HR	R																						-
Optimus	Brett Young Seeds	-	HR	HR	HR	HR	HR	-																						-

Table 3. continued

Variety	Proprietor	Variety Characteristics ¹											Lexington											Princeton					Mean ⁵ (# trials)		
		FD	Disease Resistance ²						04 ^{3,4} 5yr ⁶	06 7yr	08 6yr	11 6yr	12 6yr	15 5yr	16 6yr	17 6yr	18 5yr	19 4yr	20 3yr	00 3yr	05 5yr	08 5yr	09 6yr	11 4yr	13 3yr						
			Bw	Fw	An	PRR	APH1	APH2																							
Paola	Interlake Forage Seeds	5	HR	HR	HR	HR	HR											98	100											99(2)	
PerForm	Dairyland Research	4	HR	HR	HR	HR	HR	106																							-
PGI 459	Producers Choice	4	HR	HR	HR	HR	R			102																					-
Phirst	UniSouth Genetics	4	HR	HR	HR	HR	R																								-
Phoenix	Southern States	5	HR	HR	HR	HR	R	113	99	102	102	105																			102(6)
Radiance HD	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR					101																			103(3)
Radiant-AM	Ampac Seed	4	HR	HR	HR	HR	HR	97																							-
Rebound 5.0	Croplan Genetics	4	HR	HR	HR	HR	HR			103																					103(2)
Rebound 6.0	Croplan Genetics	4	HR	HR	HR	HR	HR																								103(2)
Rebound 6XT	Croplan Genetics	4	HR	HR	HR	HR	HR							107																	104(2)
Reward II	PGI Alfalfa	4	HR	HR	R	HR	R																								-
Saranac AR (certified)	Public	4	MR	R	HR	LR	-	77	85	86	86	91	97	92	88	83	88	88	92	95	95	88	92	82	82	97					89(16)
Triade	Interlake Forage Seeds	5	HR	HR	HR	HR	HR																								93(2)
TripleTrust 450	ABI Alfalfa	5	HR	HR	HR	HR	HR																								-
TripleTrust 500	Central Farm Supply	5	HR	HR	HR	HR	HR					108																			-
USG 681HY	UniSouth Genetics	6	HR	HR	HR	HR	-																								-
Vernal	Public	2	R	MR	-	-	-																								-
Withstand	Southern States	4	HR	HR	HR	HR	HR			100	90		96																		-
WL 343HQ	W-L Research	4	HR	HR	HR	HR	HR	101	110																						95(5)
WL 349HQ	W-L Research	4	HR	HR	HR	HR	HR																								104(3)
WL 354HQ	W-L Research	4	HR	HR	HR	HR	HR																								-
WL 357HQ	W-L Research	5	HR	HR	HR	HR	HR	123																							-
WL 363HQ	W-L Research	5	HR	HR	HR	HR	HR			105	103																				115(2)
WL 365HQ	W-L Research	5	HR	HR	HR	HR	HR																								104(3)
4030	Brett Young Seeds	4	HR	HR	HR	HR	HR							99																	-
53H92	Pioneer	3	HR	HR	HR	HR	HR						104																		-
54Q32	Pioneer	4	HR	HR	HR	HR	HR																								-
55V48	Pioneer	5	HR	HR	HR	HR	HR																								-
55V50	Pioneer	5	HR	HR	HR	HR	HR																								-
6400HT	NEXGROW	4	HR	HR	HR	HR	HR																								105
6415	NEXGROW	4	HR	HR	HR	HR	HR	108																							-
6417	NEXGROW	4	HR	HR	HR	HR	HR			105																					-
6422Q	NEXGROW	4	HR	HR	HR	HR	HR																								107(2)
6552	NEXGROW	5	HR	HR	HR	HR	HR			105																					-

¹Variety characteristics: FD=fall dormancy, Bw=bacterial wilt, Fw=fusarium wilt, An=anthracnose, PRR=phytophthora root rot, APH=aphanomyces root rot. Information provided by seed companies.

²Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance. (more detailed disease and insect resistance ratings at www.alfalfa.org/pdf/2023_Alfalfa_Variety_Leaflet.pdf)

³Year trial was established

⁴Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific test. For example, the Lexington trial planted in the spring of 2008 was harvested for 6 years, so the final yield report would be "2013 Alfalfa Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

⁵Mean only presented when respective variety was included in two or more trials.

⁶Number of years of data

Table 5. Summary of Kentucky orchardgrass yield trials 2005-2022 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor	Lexington										Princeton										Quicksand			Mean ³ (#trials)	
		06 ^{1,2} 4-yr ⁴	07 3-yr	09 3-yr	11 3-yr	12 3-yr	13 3-yr	14 3-yr	15 3-yr	16 3-yr	17 3-yr	18 3-yr	19 3-yr	20 2-yr	06 3-yr	08 3-yr	10 3-yr	12 3-yr	15 2-yr	05 4-yr	10 3-yr	13 3-yr	16 3-yr	18 2-yr		
Albert	Oregro Seeds																								101(4)	
Aldebaran	DLF Pickseed																									102(2)
Alpine II	Mountain View Seeds																									102(2)
Ambrosia	American Grass Seed Prod.																									95(2)
Barlegro	Barenbrug USA																									94
Benchmark Plus	Southern States	100	108	105	106	106	109	104																		103(14)
Beta	Mountain View Seeds																									103(14)
Bighorn	Mountain View Seeds																									103(14)
Blizzard	Allied Seed																									103(14)
Bounty	Allied Seed	101																								103(14)
Captur	DLF Pickseed																									103(14)
Century	Seed Research of Oregon	98																								103(14)
Checkmate	Seed Research of Oregon	102																								103(14)
Christoss	Proseeds Marketing	92																								103(14)
Crown	Donley Seed																									103(14)
Devour	Mountain View Seeds																									103(14)
Echelon	DLF Pickseed																									103(14)
Elise	Rose-AgriSeed																									103(14)
Endurance	DLF Pickseed																									103(14)
Extend	Allied Seed																									103(14)
Harvestar	Columbia Seeds	91	97																							103(14)
Haymaster	Southern States	94																								103(14)
HLR	Barenbrug USA																									103(14)
Icon	Seed Research of Oregon	105																								103(14)
Inavale	DLF Pickseed																									103(14)
Intensiv	Barenbrug USA																									103(14)
Lazuly	Proseeds Marketing																									103(14)
Lyra	Hood River Seed																									103(14)
Megabite	Turf-Seed																									103(14)
Olathe	DLF Pickseed																									103(14)
Paiute	DLF Pickseed																									103(14)
Persist	Smith Seed	105	106	107	112	112	100	103	111	98	111	103	105	97	105	102	101	101	101	102	103	103	107	126	106(21)	
Persist II	Smith Seed																									112(2)
Potomac	Public																									102(16)
Prairie	Turner Seed	107	101	109	106	113	123	108	103	111	111	105	98	108	100	104	96	107	120	102	105	107	107	107	106(23)	
Prodigy	Caudill Seed																									98(9)
Profit	Ampac Seed																									100(15)
Quickdraw	Grassland Oregon																									100(15)
RAD-LCF 25	Radix Research																									101(2)
Rushmore II	Mountain View seeds																									104(3)
Shawnee	Rose-AgriSeed																									104(3)
SS0708OGDT	Southern States																									102(10)
Swante	Smith Seed																									102(10)
Tekena II	Smith Seed																									83(3)
Tekapo	Ampac Seed																									79
Treposno	Hood River Seed	91	81	82	78	82	76	80																		103(2)
Tucker	Oregro Seeds																									86(15)
Udder	Improved Forages	107																								97(3)
Vaillant	Proseeds Marketing																									97(3)
																										103(2)
																										103(2)

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2012 was harvested 3 years, so the final report would be "2015 Orchardgrass Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

³Mean only presented when respective variety was included in two or more trials.

⁴Number of years of data.

Table 6. continued

Variety	Endophyte Status ¹	Proprietor	Lexington												Princeton					Quicksand				Mean ⁴ (#trials)					
			05 ^{2,3}	07	09	11	12	13	14	15	16	17	18	19	20	06	08	10	12	15	17	19	05		13	16	18		
			3-yr ⁵	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr		3-yr	3-yr	3-yr	3-yr	
Tower	free	DLF Pickseed												101													91	98(4)	
Tower Protek	novel	DLF Pickseed				98								104														81	94(5)
Triumphant	free	DLF Pickseed																											97(3)
Triumphant Protek	novel	DLF Pickseed																											97(3)
Tuscany II	free	Seed Research of OR																											–
Velvet	free	Oregro Seeds																											–
5CAN	free	Brett Young																											–

¹Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle. ²Year trial was established.

³Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was harvested 3 years, so the final report would be "2019 Tall Fescue Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

⁴Mean only presented when respective variety was included in two or more trials.

⁵Number of years of data.

Table 7. Summary of Kentucky bromegrass yield trials at Lexington 2006-2022 (yield shown as a percentage of the mean of the commercial varieties in the trial.)

Variety	Type	Proprietor/KY Distributor	2006 ^{1,2}	2008	2010	2012	2014	2016	2017	2018	2019	2020	Mean ³
			4-yr ⁴	3-yr	3-yr	3-yr	3-yr	3-yr	4-yr	3-yr	3-yr	3-yr	2-yr
AC Knowles	hybrid	Agriculture Canada	85		82	102	89		106	100	100	103	89(4)
Admiral	meadow	Cisco Seeds						107	93				103(5)
Arid	meadow	Mountain View Seeds						94					94(2)
Arsenal	meadow	Barenbrug USA								106	106	106	106(3)
Artillery	smooth	Barenbrug USA								100	99	85	95(3)
Bigfoot	hybrid	Grassland Oregon	108	116	105								110(3)
Canterbury	mountain	Barenbrug USA		79									–
Carlton	smooth	Pickseed USA				82	95			85			87(3)
Doina	smooth	Barenbrug USA		114	108								111(2)
Fleet	meadow	Agriculture Canada	110			109							110(2)
Hakari	Alaska	Barenbrug USA		85	85								85(2)
MacBeth	meadow	Cisco Seeds		136	119	107	116	103	123	100	95	108	111(10)
Olga	smooth	Barenbrug USA		116	101								109(2)
Peak	smooth	Allied Seed		97		100		95	88	103		98	96(7)
Persister	prairie	DLF Pickseed		72									–
RAD-BI29	smooth	Columbia Seeds	96	86									91(2)

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was harvested 3 years, so the final report would be "2019 Tall Fescue and Brome Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

³Mean only presented when respective variety was included in two or more trials.

⁴Number of years of data

Table 9. Summary of Kentucky Bluegrass Yield Trials at Lexington 2004-2022 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	04 ^{1,2} 3yr ⁴	06 4yr	07 3yr	08 3yr	09 3yr	10 3yr	11 3yr	12 3yr	13 3yr	14 3yr	16 3yr	17 3yr	18 2yr	19 3yr	20 2-yr	Mean ³ (#trials)
Adam 1	Radix Research	98															
Balin	Pure Seed												91	80			86(2)
Bardeby	Barenbrug USA		94		101		91	98	87	103	101	103	128	120	109	120	105(12)
Big Blue	Rose-AgriSeed				82				95								89(2)
Common	Public		71	66	68												68(3)
Ginger	ProSeeds Marketing		118	119	114	118	112	107	110	107	95	101	119	98	95	105	108(14)
Isabel	Smith Seed Services															71	
Kenblue	Public	102	133				96	95	118	95	100						106(7)
Lato	Turf Seed Inc.			122													
Park (certified)	Public								90	95	104	117	88	102	96	104	100(8)
RAD-5	Radix Research		103														
RAD-339	Radix Research		101														
RAD-643	Radix Research		94														
RAD-731zx	Radix Research		87														
RAD-762	Radix Research		94														
RAD-1039	Radix Research				118												
Tirem	DLF Pickseed											79	74				77(2)

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2017 was harvested 3 years, so the final report would be "2020 Timothy and Kentucky Bluegrass Report" archived in the UK Forage website (<https://forages.ca.uky.edu>)

³Mean only presented when respective variety was included in two or more trials.

⁴Number of years of data.

Table 10. (continued)

Variety	Type	Proprietor	Lexington ¹																	Mean ⁴ (#trials)			
			03 ^{2,3}	04	05	06	07	08	09	10	10	11	12	12	13	14	15	16	17		18	19	21
Hercules	Westerwold tetraploid	Barenbrug USA										91	68										
HS-1	Italian diploid	KB SeedSolutions							72														
Jackson	Westerwold diploid	The Wax Co.	66	100	62	103	59	101	99	106	106	91	77	69	100	99	97	105	95	95	87		93(17)
Jumbo	Westerwold tetraploid	Barenbrug USA	112														88	83					94(3)
KB Royal	Italian diploid	KB SeedSolutions							83														
Koga	Westerwold tetraploid	Smith Seed Services															94	96	101	95			97(4)
Kospeed	Westerwold diploid	Smith Seed Services													80	92							86(2)
Kowinearly	Westerwold diploid	Smith Seed Services													95	96							96(2)
LHT-102	Intermediate	Ampac Seed										100											
Mantis	Westerwold tetraploid	Smith Seed Services																			88		
Marshall	Westerwold diploid	The Wax Co.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(18)
Master	Westerwold tetraploid	Smith Seed Services																82					
Maximo	Intermediate tetraploid	Pickseed USA, Inc.									101												
Maximus	Westerwold tetraploid	Barenbrug USA															63	84					74(2)
Melquatro	Italian tetraploid	Hood River Seed														135	72						104(2)
Meroa	Westerwold diploid	Smith Seed Services													93	102				108	96		100(4)
MX 108	Westerwold tetraploid	Pickseed USA, Inc.									95	114											105(2)
Nelson	Westerwold tetraploid	The Wax Co.								86			93	65	77	105	97	73	91	104	94		91(9)
Oryx	Italian diploid	Hood River Seed														100							
Primecut	Westerwold brand	Oregro Seeds									94												
Rapido	Westerwold diploid	Smith Seed Services																		77			
Striker	Westerwold tetraploid	Seed Research of OR					90																
TAMTBO	Westerwold tetraploid	Tex. Ag Exp Sta.						47	101		108	95			79			91					87(6)
Tam 90	Italian diploid	Tex. Ag Exp Sta.						49						78									64(2)
TetraPrime	Italian tetraploid	Mountain View Seeds										101		96	104	91	99	90	86	80			93(8)
TetraPro	Italian tetraploid	Tex. Ag Exp Sta.					40																
TillageRootMax	Westerwold diploid	Cover Crop Solutions									82	90											86(2)
T-Rex	Westerwold tetraploid	SaddleButte			11																		
Trinova	Westerwold tetraploid	Smith Seed Services																78					
Ugne	Italian tetraploid	Hood River Seed														102							
Verdure	Westerwold tetraploid	Smith Seed Services							86				42	58									72(2)
Winterhawk	Westerwold diploid	Oregro Seeds							104		117	92		119				113	96	91	98		104(8)

¹In annual ryegrass, low-yielding varieties usually result from winterkill. Note: Due to severe winterkill, yield results from the 2006 and 2013 plantings were not included in the overall mean.

²Year trial was established.

³Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in 2015 was harvested 1 year, so the final report would be "2016 Annual and Perennial Ryegrass and Festulolium Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

⁴Mean only presented when respective variety was included in two or more trials.

⁵Type was not provided by the company.

Table 11. continued

Variety	Type	Proprietor	Lexington																		Princeton			Mean ^{3,4} (#trials)		
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	00		01	02
			2yr ⁵	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr		3yr	2yr
TetraSweet	tetraploid	Mountain View Seeds														104	105	87	97	82						95(5)
Tonga	tetraploid	Kings Agri/Seeds						96																	100(3)	
Verseka	tetraploid	Allied Seed										75													—	
Victorian	diploid	Caudill Seed										104	83												94(2)	
Yatsyn	diploid	Barenbrug USA																					89	—		

¹Year trial was established.
²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2012 was harvested 3 years, so the final report would be "2015 Annual and Perennial Ryegrass and Festulolium Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).
³Mean only presented when respective variety was included in two or more trials.
⁴In perennial ryegrass, low yielding varieties usually result from winterkill or summer mortality.
⁵Number of years of data
⁶Lexington PLUS NEAZ contains a non-toxic (novel) endophyte.
⁷Type was not provided by the company.

Table 12. Summary of Kentucky festulolium yield trials 2001-2022 (yield shown as a percentage of the mean of the commercial varieties in the trial).¹

Variety	Type ²	Proprietor	Lexington																		Mean ⁵ (#trials)			
			2001 ^{3,4} 2yr ⁶	2005	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2019	2020								
			3yr	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	3yr	3yr	3yr	3yr	2yr	2yr							
Agula	MF x IR	Allied Seed					94																	—
Barfest	MF x PR	Barenbrug USA					105	101	107	119	91	92												101(7)
Bonus	MF x IR	Allied Seed					93	46	32	34														51(4)
Duo	MF x PR	Ampac Seed	89				99	106	103	96	96	83	83	80	98	96	94(13)							94(13)
Felina	(TF x IR) x TF	DLF Pickseed	104					132	118	114	96													116(6)
Fojtan	(TF x IR) x TF	DLF Pickseed						112	101	124	92	72	94	100	108	86	99(9)							77(4)
Gain	MF x IR	Allied Seed						103	77	52	75													108(4)
Hostyn	MF x IR	DLF Pickseed							107	110	106													123(9)
Hylkor	(TF x IR) x TF	DLF Pickseed						133	141	153	131	119	121	112	94	102	83(2)							—
InaMerlin	MF x IR	Hood River Seed												88	77									—
Kenfest	MF x AR	KY Agr. Exp Station													97									—
Lofa	(TF x Int) x Int	DLF Pickseed																						—
Mahulena	(TF x IR) x TF	DLF Pickseed																						—
Meadow Green	— ⁷	Pure Seed																						—
Perseus	MF x IR	DLF Pickseed						132	114	126	123	110	109	105	112	113	108							115(10)
Perun	MF x IR	DLF Pickseed						127	114	107	131	110	102	99	110	105	96							110(10)
Rebab	(TF x IR) x TF	DLF Pickseed									94	77												86(2)
Spring Green	MF x PR	Turf-Seed	96	111	114	101	113	112	114	114	110	103	107	92	101	94	104(14)							—
Sweet Tart	MF x IR	ProSeeds Marketing					82	63	62	62														74(4)

¹The festuloliums were in fescue trials from 2001-2005 and in perennial ryegrass trials from 2008-2009.
²MF=meadow fescue, TF=tall fescue, IR=Italian ryegrass, PR=perennial ryegrass, Int=intermediate ryegrass.
³Year trial was established.
⁴Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2012 was harvested 3 years, so the final report would be "2015 Annual and Perennial Ryegrass and Festulolium Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).
⁵Mean only presented when respective variety was included in two or more trials.
⁶Number of years of data
⁷Type was not provided by the company.

Table 16. Summary of Kentucky forage sorghum yield trials 2013-2022 (yield shown as a percentage 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	17	19 ⁴	19	21	22			
		All Trials are 1 year yields																	
ADV7232 BMR ⁵	Advanta Seed/Ramer Seed							88	92	89	84				93	84	92	91	89(7)
AF7201 BMR (Brachytic Dwarf)	Advanta Seed/Ramer Seed	89	81	101	89			94	84	79	87				74	83	92	87	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	116			87	100	73	87	87(14)
AF8301	Advanta Seed/Ramer Seed							98	103	95	87				124	85	112	114	99(7)
Ensilmaster	Caudill Seed	125	90	101	106	111	129	118	129	93	110	171			77	85	79	97	110(14)
FSG114 BMR	Farm Science Genetics		94	128	93	125	91	76	91	106					89	79			95(10)
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics		51	31	72	81	74	67	77	92					60	74			69(10)
F74FS23 BMR	Dyna-Gro Seed							125	94	107	111				77	76	92	91	99(7)
F74FS72 BMR	Dyna-Gro Seed							93	87	82	140				59	117	85	82	98(7)
F75F513	Dyna-Gro Seed							107	94	102	80				109	84	87	79	90(7)
GW2120	Gayland Ward Seed	117	89	113	84	107	88	102	91	70	88	85			98	115	81	80	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	119					93	97	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					87		73	67(7)
SPT1615	Sorghum Partners								125	158	175				164	170	166	142	156(6)
SP3904BD BMR (Brachytic Dwarf)	Sorghum Partners								88	97	75						101	97	92(5)
SP3905BD BMR (Brachytic Dwarf)	Sorghum Partners								81	72	83						58	75	74(5)
SS1515	Southern States							125	105	91	94				97	75	111	100	100(7)
SS304	Sorghum Partners								121	114	110						95	111	110(5)
SS405	Sorghum Partners		188	183	207	138	202	139	143	188	87	160			142	171	193	193	168(13)
Super Sile 20	Dyna-Gro Seed							107	120	140	90				106	124	149	106	119(7)
Super Sile 30	Dyna-Gro Seed							121	115	123	96				129	104	132	122	116(7)
SWFS8802	S&W SeedCompany									66							64		65(2)
TopTon	Dyna-Gro Seed							131	130	140	117				84	73	124	82	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)

¹Establishment year.

²Use 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.

³Mean only presented when respective variety was included in two or more trials.

⁴This trial was sprayed with an aphicide and the results are not included in the overall mean.

⁵BMR (Brown Mid-rib) means that a variety has been developed to produce lower amounts of lignin which usually translates into higher quality.

Table 17. Summary of Kentucky teff yield trials 2008-2022 (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	08	09	19	20	21	22		
		All Trials are 1 year yields																				
Corvallis	Smith Seed Services	81	101	91	101	96	100	110	96	102	110	116	92	103	94	112	99	112	92	105	101(19)	
CW0604	Barenbrug USA										101	100	101	102		97	103	103	86	107	100(8)	
Dessie	Allied Seed	99	92	96	94	95	97	101	104	105	89	109	105	100	102	87	101	98	127	101	100(19)	
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	91	84	103	104	96	89	95(19)	
Moxie	Barenbrug USA						94	96	105	107	110	105	98	103			95	101	115	107	103(12)	
Pharaoh	First Line Seeds	105	85	106	106	97	101	93	97	94	102	90	102	102	95	101	107	104	97	101	99(19)	
Rooiberg	--	112	109	113	108	115	102	88							102	107					106(9)	
Summer Delight	Cisco Seeds		91	96	88	93	100	119	101	104	91	90	99			90	99	90	89		96(15)	
Tiffany	Turner Seed	102	93	82	93	102	98	104	97	105	110	101	93	103	102	106	104	98	103	99	100(19)	
VA T1 Brown	Hankins Seed		99	87	91	94	98	104	97	101	100	97	96	94		89		93	104		96(15)	
Velvet	--		100	97	98	95	103	95	99	100	101	98	106	95		94	96	98	92		98(17)	
Witkofo	--	93	101	115	103	101	104	107							94	100					102(9)	

¹Establishment year.

²Use 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.

³Mean only presented when respective variety was included in two or more trials.

⁴Check with local dealers for available varieties.

Table 18. Summary of Kentucky crabgrass yield trials 2016-2022 (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	2019	2020	2021	2022		
		All trials are 1 year yields											
Dal's Big River	Dalrymple Farms						100					103	102(2)
Impact	Barenbrug USA	107	107	108	108	116	100	105	100	95	106	105(10)	
Mojo w/YJ ⁴	Barenbrug USA				98	109	108			96	102	102(6)	
Quick-N-Big	Noble Foundation	89	85	81	95	78	91	99	101	100	92	91(10)	
Quick-N-Big Spreader	Dalrymple Farms						101				96	99(2)	
Red River	Noble Foundation	104	108	110	99	97	100	96	102	108	101	103(10)	

¹Establishment year.

²Use 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.

³Mean only presented when respective variety was included in two or more trials.

⁴YJ = yellow jacket coating on the seed

Table 19. Summary of Kentucky spring oats yield trials 2015-2022 (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	All trials are 1 year yields					2022	Mean ³ (#trials)	
					2018	2019	2020	2021	2022			
		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. Alummi Seed, IN	120	101	111	107	115	125	105	111			112(8)
Haywire	Cisco Seeds							98				90(2)
Jerry	Caudill Seed	107	93	103	99	95	119	104	111			104(8)
Persik (black hulled)	Caldbeck Consulting		112	114	127	106	101					110(6)
PST-241	Caldbeck Consulting	91	86	86	86							87(4)
PSTSO200	Caldbeck Consulting	102	90	87	79							90(4)
PSTSO-288C	Caldbeck Consulting	91	102	88	97							95(4)
PSTSOKMJ06	Caldbeck Consulting								104	94		99(2)
PSTSOPH26 (black Hulled)	Caldbeck Consulting								98	110		104(2)
Reins	Ag. Alummi Seed, IN	94	111	117	102	94	98	86	77			91(5)
Robust	Ag. Alummi Seed, IN	104	104	100	102	97	106(5)					106(5)
Saber	Ag. Alummi Seed, IN	104	104	100	100	97	93	96	93			98(5)
VNK	Public		97	107	101	94	91	105	91			98(7)
021A17815	Ag. Alummi Seed, IN	97	108	87								97(3)

¹Establishment year.

²Use 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.

³Mean only presented when respective variety was included in two or more trials.

Table 23. Summary of 2000-2022 Kentucky orchardgrass grazing tolerance trials in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the trial).

Variety	Proprietor	2000 ^{1,2}	2001	2002	2003	2004	2005 ³	2007	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mean ⁴	
		4yr ⁵	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	(#trials)
Abertop	Pennington Seed		38																		
Albert	Univ. of Wisconsin		115																		-
Amba	DLF-Jenks		71																		-
Ambrosia	Pennington Seed						94														-
Athos	DLF-Jenks		93				60														-
Benchmark	Southern States	118	123	114																	118(3)
Benchmark Plus	Southern States			120			152	135	106	106	108	115	146	154							120(5)
Boone	Public	102																			-
Command	Seed Research of OR					81															-
Crown Royale	Donley Seed		100																		-
Crown Royale Plus	Donley Seed			124																	-
Devour	Mountain View Seeds														145						-
Elise	Pure Seed											97			62						80(2)
Hallmark	James VanLeeuwen		115		113																114(2)
Harvestar	Columbia Seeds							75		89	94		51	34	60						70(5)
Haymate	Southern States	53	115	100	118																97(4)
HLR	Barenbrug USA																		93		-
Intensiv	Barenbrug USA				51																-
Mammoth	DLF-Jenks		115																		-
Megabite	Turf Seed		77																		-
Niva	DLF-Jenks			76																	-
Persist	Smith Seed Services						138	107	103	100	96	115	102	123	104	131	116	132	107		113(11)
Persist II	Smith Seed Services														109	82	109		107		-
Potomac (certified)	Public			116		119					94		131	90	97	107	60	105	91		107(5)
Prairie	Turner Seed	127	121										109	119		94	109	97	93		99(9)
Prodigy	Caudill Seed																				102(5)
Profile	Scott Seed			116																	-
Profit	Ampac Seed								95	99	102	94	95	90	82						94(6)
Tekapo	Ampac Seed		55	74	118		50	103	95	105	106	80	66	63	77						87(10)
Takana	Smith Seed Services		99																		-
Seco	Southern States							85													-
SS07080GDT	Southern States													128	131	118	106	109	103		116(6)
Swante	Smith Seed Services																57				-

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was grazed 4 years so the final report would be "2020 Cool-Season Grass Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

³Due to high variation during 2005 and 2013 trials these values are not included in the overall mean

⁴Mean only presented when respective variety was included in two or more trials.

⁵Number of years of data

Stand thinning may have been greater for preferred varieties due to closer grazing. See individual trial tables for preference ratings.

Table 24. Summary of 2001-2022 Kentucky perennial ryegrass and festulolium (FL) grazing tolerance trials in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the trial).

Variety	Type	Proprietor	2001 ^{1,2}		2003	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mean ³ (#trials)
			3yr ⁴	4yr														
AGRLP103	-	AgResearch USA		86														
Albion	tetraploid	Grassland Oregon											112					
Aries	diploid	Ampac Seed	128															
Barfest (FL)	MF x PR ⁶	Barenbrug USA					116	112										114(2)
BG-34	diploid	Barenbrug USA											78					
Boost	tetraploid	Allied Seed				101	83	95	92									93(4)
Calibra	tetraploid	DLF International							106			88	90	98		94		95(5)
Citadel	tetraploid	Donley Seed																
Duo (FL)	MF x PR ⁶	Ampac Seed				95	72	90	102				65	65				82(6)
Lasso	diploid	DLF-Jenks	120															
Linn (certified)	diploid	Public	118	63		95	108	95	91	96	80	79	88	88	99	117		93(13)
Melpetra	tetraploid	Hood River Seed											90					
PayDay	tetraploid	Mountain View Seeds								101	85				99	90	100	95(5)
Polly II	tetraploid	FS Growmark	63															52(2)
Power	tetraploid	Ampac Seed				158	107	112	96	89	79	78						103(7)
Quartet	tetraploid	Ampac Seed	70			59												68(2)
Remington	tetraploid	Barenbrug USA		151							138	168	169	124	116	119		141(7)
Remington PLUS NEA2 ⁵	tetraploid	Barenbrug USA									145	159			122	122		137(4)
Spring Green (FL)	MF x PR ⁶	Rose Agri-Seed				109	115	115	106			81	88					102(6)
TetraGain	tetraploid	Pure Seed							102					90				96(2)
TetraMag	tetraploid	Mountain View Seeds													89	51		70(2)
TetraSweet	tetraploid	Mountain View Seeds													89	87		88(2)
Victorian	diploid	Caudill Seed								114					109			112(2)

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was grazed 4 years so the final report would be "2020 Cool-Season Grass Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

³Mean only presented when respective variety was included in two or more trials.

⁴Number of years of data

⁵Remington PLUS NEA2 contains a non-toxic (novel) endophyte.

⁶MF=meadow fescue, PR=perennial ryegrass, IR=Italian ryegrass.

Table 25. Summary of 2002-2022 Kentucky tall fescue horse grazing tolerance trials with three or more years of data in Lexington (stand persistence shown as a percent of the stand rating of the endophyte free variety KY 31-).

Variety	Endophyte Status ¹	Proprietor/KY Distributor	2002 ^{2,3}		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		Mean ⁴ (#trials)
			4-yr ⁵	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr			
BarOptima PLUS E34 ⁶	novel	Barenbrug USA																																					101(9)
Cajun II	free	Smith Seed Services																																					99(2)
Cowgirl	free	Rose Agri-Seed																																					102(2)
Jesup MaxQ	novel	Pennington Seed	98						78																														98(14)
KY31+	toxic	KY Agri. Exp.Sta.							102																														104(15)
KY31-	free	KY Agri. Exp.Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(18)
Lacefield MaxQ II	novel	Pennington Seed																																					104(9)
Namryo	free	Japanese Grassland Forage Seed																																					—
Seine	free	Seed Research of Oregon																																					—
Select	free	Southern States	109	94	99	73	104	76	108	98	100	101	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97(14)
SS0705TF5L	free	Southern States																																					103(6)
Stockman	free	Seed Research of Oregon																																					—
Texoma MaxQII	novel	Pennington Seed																																					117

¹Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

²Year trial was established.

³Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was grazed 4 years so the final report would be "2020 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

⁴Mean only presented when respective variety was included in two or more trials.

⁵Number of years of data

⁶BarOptima PLUS E34 is not recommended for pregnant mares because it produces low levels of the alkaloid ergovaline.

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Table 26. Summary of 1999-2022 Kentucky orchardgrass horse grazing tolerance trials with three or more years of data in Lexington (stand persistence shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	1999 ^{1,2}		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		Mean ⁴ (#trials)
		3-yr ⁵	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr						
Albert	Univ. of Wisconsin																																									—		
Ambrosia	Amer.Grass Seed Prod.																																									—		
Benchmark	Southern States	104					85																																			95(2)		
Benchmark Plus	Southern States							111	157	139	111	114	121	121	137	105																										120(8)		
Crown Royale	Grassland Oregon							95																																	—			
Crown Royale Plus	Grassland Oregon							97																																	—			
Elise	Pure Seed																																								—			
Haymate	Southern States	96	85				97																																		93(3)			
Persist	Smith Seed Services																																								—			
Potomac	Public																																								93(3)			
Prairie	Turner Seed							100																																	113(11)			
Prodigy	Caudill Seed																																								91(2)			
Profit	Ampac Seed																																								100(6)			
SS-07080GDT	Southern States																																								72(3)			
Tekapo	Ampac Seed	101	115																																						95(4)			
																																									96(6)			
																																										94(9)		

¹Year trial was established.

²Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was grazed 4 years so the final report would be "2020 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

³Due to high variation during 2005 these values are not included in the overall mean

⁴Mean only presented when respective variety was included in two or more trials.

⁵Number of years of data

