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2021 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 tremendous variation.

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 expresses 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.

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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 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 variety, 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 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 wildenowii*) 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 lovegrass (*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 2021 reports on the forage website (https://forages.ca.uky.edu). See below for specific reports. Reports from 2001 to 2020 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.

- 2021 Alfalfa Report (PR-799)
- 2021 Red and White Clover Report (PR-800)
- 2021 Orchardgrass Report (PR-801)
- 2021 Tall Fescue and Bromegrass Report (PR-802)
- 2021 Timothy and Kentucky Bluegrass Report (PR-803)
- 2021 Annual and Perennial Ryegrass and Festulolium Report (PR-804)
- 2021 Alfalfa Grazing Tolerance Report (PR-805)
- 2021 Red and White Clover Grazing Tolerance Report (PR-806)
- 2021 Cool-Season Grass Grazing Tolerance Report (PR-807)
- 2021 Cool-Season Grass Horse Grazing Report (PR-808)
- 2021 Annual Grass Report: Warm Season and Cool Season (Cereals) (PR-809)
- 2021 Long-Term Summary of Kentucky Forage Variety Trials (PR-810)

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 1. Summary of Kentucky white clover yield trials 2002-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

			Lexington																		Princeton		
			02[1,2]	03	04	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	03	05	Mean[3]
Variety	Type	Proprietor	3yr[4]	3yr	3-yr	2-yr	2-yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	2-yr	3-yr	2-yr	3yr	3-yr	(#trials)
Advantage	Ladino	Allied Seed, L.L.C.		125																			–
Alice	Intermediate	Barenbrug USA												105	120	78	94	93	112	99		86	98(8)
Apis	Ladino	Smith Seed Services																	96	98			97(2)
Avoca	Dutch	DLF Pickseed				59																82	71(2)
Barblanca	Intermediate	Barenbrug USA		92																			–
Bombus	Ladino	Hood River														111	115						113(2)
Brianna	Ladino	DLF Pickseed														103	100						102(2)
CA ladino	Ladino	Public	100		124																103		109(3)
Colt	Intermediate	Seed Research of OR		90		57																114	87(3)
Common	Dutch	Public	100				53			98												78	82(4)
Companion	Ladino	Oregro Seeds						87	94	92									90				93(4)
Crescendo	Ladino	Cal/West Seeds	105			140														101		109	113(4)
Crusader II	Intermediate	Allied Seed, L.L.C.								90	50	54	75										67(4)
Excel	Ladino	Allied Seed, L.L.C.			100																		–
Domino	Ladino	Grassland Oregon												87									–
Dusi	Ladino	Barenbrug USA																		110			–
Durana	Intermediate	Pennington		94		94	88	82	85	97	93	84	97	89	78	99	89	73	82	84	87	83	88(18)
GWC-AS10	Ladino	Ampac Seed									102												–
Insight	Ladino	Allied Seed, L.L.C.				128																	–
Ivory	Intermediate	Cebeco	96																				–
Ivory II	Intermediate	DLF Pickseed					86			101	127												105(3)
Jumbo	Ladino	Ampac Seed	93																				–
Jumbo II	Ladino	Ampac Seed									121	101			99								107(3)
Kakariki	Ladino	Luisetti Seeds															108						–
Kopu II	Intermediate	Ampac Seed	97			97	95	95	103	96	80	90											94(8)
KY Select	Intermediate	KY. Agric. Exp. Station									98	95											97(2)
Neches	Intermediate	Barenbrug USA													79				93	99			90(3)
Ocoee	Ladino	Allied Seed, L.L.C.								89	74												82(2)
Patriot	Intermediate	Pennington		103		87	104	113	95	117	117	99	82	78	88	100	93	92	95	100	104	100	98(18)
Pinnacle	Ladino	Allied Seed, L.L.C.				120																111	116(2)
Rampart	Ladino	Allied Seed, L.L.C.					80	89	97	83									90	89			88(6)
Regal	Ladino	Public	99	96	92		125	100	116	118	129	147	123		111	119	112	120	120	110	107	100	113(12)
RegalGraze	Ladino	Cal/West Seeds				127	140	102	103					83	85	91			99				116(10)
Renovation	Intermediate	Smith Seed Services																					90(4)
Resolute	Intermediate	Southern States				63																	–
RIVENDEL	Intermediate	DLF Pickseed														59	88						74(2)
Seminole	Ladino	Saddle Butte Ag. Inc			108	70	79							114									93(4)
Super Haifa	Intermediate	Allied Seed, L.L.C.			77																		–
Tillman II	Ladino	Caudill Seed	103																				–
WBDX	Dutch	Saddle Butte Ag. Inc									72												–
Will	Ladino	Allied Seed, L.L.C.	107			162	150	132	107	119	137	130	123	143	140	140	102	122	122	110		136	128(17)

[1] Year trial was established.

[2] Use 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 2010 was harvested three years, so the final report would be "2012 Red and White Clover Report" archived in the UK Forage website (https://forages.ca.uky.edu).

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

[4] Number of years of data.

Table 2. Summary of Kentucky red clover yield trials 2004-2021 (yield shown as a percentage of the mean of the named commercial varieties in the trial).

		Lexington															Princeton							Quicksand				EdenShale		
		04[1,2]	06	08	09	10	11	12	13	14	15	16	17	18	19	20	05	08	09	11	13	15	19	05	08	10	19	08	10	Mean[3]
Variety	Proprietor	3yr[4]	2yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	3yr	3yr	2-yr	3-yr	3-yr	2-yr	2yr	3yr	2yr	2yr	3yr	3yr	2-yr	3yr	3yr	3yr	2-yr	3yr	3yr	(#trials)
AA117ER	ABI Alfalfa		110														87							92						96(3)
Barduro	Barenbrug USA														86	90							73				83			83(4)
Bearcat	Brett Young Seeds											122																		–
Bigfoot	Preferred Alf. Genetics														97								107							101(2)
Blaze	Mountain View Seeds														107	104														106(2)
Cinnamon Plus	Southern States		109	112	123	117	94	116	101	98							112	102	102	100	100			103	108	124		108	122	108(18)
Common O	Public					96	97	63	84	92	70	49	80	67	77	86					67	91	70			72	85		77	78(17)
CW9901	Barenbrug USA														103								115				109			109(3)
Dominion	Seed Research of OR		102														95	102						93				109		100(5)
Emarwan	Turf-Seed	91			117														106							99				103(4)
Evolve	DLF Pickseed USA										98	96	102									99								99(4)
FF9615	LaCrosse Seed											110	104																	107(2)
Freedom!	Barenbrug USA	118	91	100	108	106	109	99	101	97	107	114	113	107	114	110	136	107	116	95	107	104	124	119	106	115	133	100	140	111(28)
Freedom!MR	Barenbrug USA	102	114	114		112								117	126		101		108				82	111		128	115		125	112(13)
FSG 402	Allied Seed								104												114									108(2)
FSG 9601	Allied Seed	89																												–
Gallant	Turner Seed								101		112		105	101	97	110					107	101	121							106(9)
GA9908	Smith Seed												93		93	105							92				85			94(5)
Juliet	Caudill Seed				84													93	90									84	59	82(5)
Kenland (cert.)	KY Ag.Exp Sta.	117	117	99	111	99	116	114	109	103	105	119	108	107	107	104	92	113	106	106	115	100	113	105	104	123	110	110	138	110(28)
Kenland (uncert)	Public					82						41						74								67		66	92	70(6)
Kenton	KY Ag.Exp Sta.	95	112	121													105	112	94					106	98					105(8)
Kenway	KY Ag.Exp Sta.	97	119	118													94	106	103					103	94					104(8)
LS 9703	Lewis Seed							107													86									97(2)
Morning Star	Cal/West Seeds																	90										90		90(2)
Plus II	Allied Seed			130																					97					114(2)
Quinequeli	Caudill Seed				92														80										57	76(3)
Red Gold	Proseeds Marketing		81															89									102		91(3)
Red Gold Plus	Turner Seed	95																												–
Redkin	DLF Pickseed USA															93														–
Redland Max	ABI Alfalfa	95																												–
Renegade	DLF Pickseed USA															103														–
Robust	Blu Moon Farms												78																	–
Robust II	Seed Research of OR																	110										108		109(2)
Robust III	Seed Research of OR															98														–
Rocket	Seed Research of OR																	106										108		107(2)
Rustler	Oregro Seeds			83		101	84									88									94	99			104	93(7)
Solid	Production Service		79														86							76						80(3)
SS-0303RCG	Southern States									103	109	150	117	102	93	110					103	104	104				80			107(11)
Starfire II	Cal/West & Ampac			101		111				107								112							110	112		115	111	110(8)
Triple Trust 350	ABI Alfalfa		101														92							92						95(3)
Wildcat	Brett Young Seeds				101														107							98				102(3)

[1] Year trial was established.

[2] Use 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 2010 was harvested three years, so the final report would be "2012 Red and White Clover Report" archived in the UK Forage website (https://forages.ca.uky.edu).

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

[4] Number of years of data.

Table 3. Summary of Kentucky alfalfa yield trials 2004-2021 (yield shown as a percentage of the mean of the commercial varieties in the test).

		Variety Characteristics[1]						Lexington										Princeton					Mean[5]
			Disease Resistance[2]					04[3,4]	06	08	11	12	15	16	17	18	19	05	08	09	11	13	
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	5yr[6]	7yr	6yr	6yr	6yr	5yr	6yr	5yr	4yr	3yr	5yr	5yr	6yr	4yr	3yr	(# trials)
A-4440	Producers Choice	4	HR	HR	HR	HR	HR			100								99					100(2)
A 5225	Producers Choice	5	HR	HR	HR	HR	R			104									107				106(2)
Adrenalin	Brett Young Seeds	4	HR	HR	HR	HR	HR													104			–
Alfagraze	America's Alfalfa	3	HR	HR	HR	HR	HR										84						–
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR		99	91	102	94							100	101	107	99	99(8)
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR						104	102	106	109	109			94			104(6)
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR													103	104		104(2)
Ameristand 427TQ	America's Alfalfa	4	HR	HR	HR	HR	HR						109										–
Anchormate	ProSeed Marketing	–	–	–	–	–	–			100													–
Arc (certified)	Public	4	LR	MR	HR	–	–	76			93	92						95	86			95	90(6)
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR													106			–
Baralfa 53HR	Barenbrug USA	5	HR	R	HR	HR	HR											104					–
Buffalo	Public	–	–	–	–	–	–	82	86	80	89		85					95	78	87		91	86(9)
Bulldog-505	Univ. of GA	5	–	HR	–	R	–					103		93	91					96		103	97(5)
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR					99	105	99	103						99		101(5)
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR										104				106		–
Contender	Beck's Hybrids	5	HR	HR	HR	HR	HR						101	103	100								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														101	103	102(2)
Dynagro Everlast	United Agr. Prod.	4	HR	HR	HR	HR	R											101					–
Enforcer	Southern States	4	HR	HR	HR	HR	HR	90															–
Evermore	Southern States	5	HR	HR	HR	HR	HR					100		102	106								103(3)
Expedition	NEXGROW	5	HR	HR	R	RR	R	107	112									96					105(3)
Feast +EV	NEXGROW	3	HR	HR	HR	R	HR	106															–
Fierce	Beck's Hybrids	4	HR	HR	HR	HR	HR						102		105								104(2)
FSG 403LR	Farm Sci. Genetics	4	HR	HR	HR	HR	HR															102	–
FSG 408DP	Allied Seeds	4	HR	HR	HR	HR	R	105											110				108(2)
FSG 415BR	Allied Seeds	4	HR	HR	HR	HR	HR							103			105						104(2)
FSG 424	Farm Sci. Genetics	4	HR	HR	HR	HR	HR															109	–
FSG 426	Farm Sci. Genetics	4	HR	HR	HR	HR	HR						103										–
FSG 524	Farm Sci. Genetics	5	HR	HR	HR	HR	HR															96	–
FSG 528SF	Lewis Seed Co.	5	HR	R	HR	HR	R			107													–
GA-497HD	Pref. Alf. Genetics	5	HR	HR	HR	HR	HR							104			102						103(2)
GA-535	Pref. Alf. Genetics	5	HR	HR	HR	HR	HR										110						–
Genoa	NEXGROW	4	HR	HR	HR	RR	HR	112		99								98	118				107(4)
Gunner	Croplan Genetics	5	HR	HR	HR	HR	HR														103		–
KingFisher 243	Cal/West	5	HR	HR	HR	HR	HR													98			–
Kingfisher 4020	Legacy Seeds	4	HR	HR	HR	HR	HR				101												–
L447HD	Legacy Seeds	4	HR	HR	HR	HR	HR		105														–
L449Aph2	Legacy Seeds	4	HR	HR	HR	HR	HR														97		–
L455HD	Legacy Seeds	4	HR	HR	HR	HR	HR															102	–
Lancer	Allied Seeds	4	HR	HR	HR	HR	HR														101		–
LegenDairy 5.0	Croplan Genetics	3	HR	HR	HR	HR	HR		99									103					101(2)
Mariner III	Allied Seeds	4	HR	HR	HR	HR	HR												99				–
Optimus	Brett Young Seeds	–	HR	HR	HR	HR	HR															98	–

continued

Table 3. *continued*

Variety	Proprietor	Variety Characteristics[1]						Lexington										Princeton					Mean[5] (# trials)
			Disease Resistance[2]					04[3,4]	06	08	11	12	15	16	17	18	19	05	08	09	11	13	
		FD	Bw	Fw	An	PRR	APH	5yr[6]	7yr	6yr	6yr	6yr	5yr	6yr	5yr	4yr	3yr	5yr	5yr	6yr	4yr	3yr	
Paola	Interlake Forage Seeds	5	HR	HR	HR	HR	HR										99						–
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											105					–
Phoenix	Southern States	5	HR	HR	HR	HR	R	113	99	102		105							101		94		102(6)
Radiance HD	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR					101								105	103		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			103(2)
Rebound 6.0	Croplan Genetics	4	HR	HR	HR	HR	HR				104										101		103(2)
Rebound 6XT	Croplan Genetics	4	HR	HR	HR	HR	HR							107			104						106(2)
Reward II	PGI Alfalfa	4	HR	HR	R	HR	R											103					–
Saranac AR (certified)	Public	4	MR	R	HR	LR	–	77	85	86	91	97	92	88	88	91	95	95	88	92	82	97	90(15)
Triade	Interlake Forage Seeds	5	HR	HR	HR	HR	HR										90						–
TripleTrust 450	ABI Alfalfa	5	HR	HR	HR	HR	HR											100					–
TripleTrust 500	Central Farm Supply	5	HR	HR	HR	HR	HR				108												–
USG 681HY	UniSouth Genetics	6	HR	HR	HR	HR	–												113				–
Vernal	Public	2	R	MR	–	–	–											95					–
Withstand	Southern States	4	HR	HR	HR	HR	HR		100	90		96							100		87		95(5)
WL 343HQ	W-L Research	4	HR	HR	HR	HR	HR		101	110									100				104(3)
WL 349HQ	W-L Research	4	HR	HR	HR	HR	HR										99						–
WL 354HQ	W-L Research	4	HR	HR	HR	HR	HR														115		–
WL 357HQ	W-L Research	5	HR	HR	HR	HR	HR	123										106					115(2)
WL 363HQ	W-L Research	5	HR	HR	HR	HR	HR			105	103									105			104(3)
WL 365HQ	W-L Research	5	HR	HR	HR	HR	HR							99									–
4030	Brett Young Seeds	4	HR	HR	HR	HR	HR					104											–
53H92	Pioneer	3	HR	HR	HR	HR	HR				95												–
54Q32	Pioneer	4	HR	HR	HR	HR	HR				99												–
55V48	Pioneer	5	HR	HR	HR	HR	HR				102												–
55V50	Pioneer	5	HR	R	Hr	HR	HR					110					97					105	104(3)
6400HT	NEXGROW	4	HR	HR	HR	HR	HR	108															–
6415	NEXGROW	4	HR	HR	HR	HR	HR											103					–
6417	NEXGROW	4	HR	HR	HR	HR	HR			105													–
6422Q	NEXGROW	4	HR	HR	HR	HR	HR				112									102			107(2)
6552	NEXGROW	5	HR	HR	HR	HR	HR			105													–

[1] Variety 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.

[2] Disease 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/2021_Alfalfa_Variety_Leafllet.pdf).

[3] Year trial was established.

[4] Use 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 2008 was harvested for six years, so the final yield report would be "2013 Alfalfa Report" archived in the UK Forage website (https://forages.ca.uky.edu).

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

[6] Number of years of data.

Table 4. Summary of Kentucky Roundup Ready alfalfa yield trials 2011-2021 (yield shown as a percentage of the mean of the commercial varieties in the test).

		Variety Characteristics[1]						Lexington			Princeton			Quicksand	Mean[5]
			Disease Resistance[2]					12[3,4]	15	16	11	13	15	14	
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	6yr[6]	6yr	5-yr	5yr	4yr	2yr	2yr	(# trials)
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	95	96	100	93	99	93		96(6)
Alfagraze 600 RR	America's Alfalfa	6		R	HR	R	R		97				85	93	92(3)
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	100	100	89	97	100	98	93	97(7)
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	92	98	100		95	96	107	98(6)
Ameristand 445TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	105	104			100			103(3)
AphaTron RR	Croplan Genetics	4	HR	HR	HR	HR	HR	99				98			99(2)
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR	101			102				102(2)
DKA-41-18 RR	Monsanto	4	HR	HR	HR	HR	HR	100			101		100		100(3)
DKA 44-16 RR	Monsanto	4	HR	HR	HR	HR	HR	104				100			102(2)
Stratica RR	Croplan Genetics	4	HR	HR	HR	HR	HR	97		105		96			99(3)
Tonnica RR	Crop Genetics	5	HR	HR	HR	HR	HR	105				101			103(2)
WL 355 RR	W-L Research	4	HR	HR	HR	HR	HR	99			102		110		104(3)
WL 356HQ RR	W-L Research	5	HR	HR	HR	HR	HR	100	99			96			98(3)
WL 372HQ RR	W-L Research	5	HR	HR	HR	HR	HR	102				106			104(2)
428 RR	Allied Seed	4	HR	HR	HR	HR	HR		100	100		104		111	104(4)
54R02 RR	Dupont Pioneer	4	HR	HR	HR	HR	HR	97	107	96	104		102	97	101(6)
55VR06 RR	Dupont Pioneer	5	HR	R	Hr	HR	HR		95					99	97(2)
55VR08 RR	Dupont Pioneer	5	–	HR	HR	HR	HR		103	111			110		108(3)
6516R RR	NEXGROW	5	HR	–	HR	HR	HR	106				109			108(2)

[1] Variety 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.

[2] Disease 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/2021_Alfalfa_Variety_Leaflet.pdf).

[3] Year trial was established.

[4] Use 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 Princeton trial planted in 2011 was harvested for five years, so the final yield report would be "2015 Alfalfa Report" archived in the UK Forage website (https://forages.ca.uky.edu).

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

[6] Number of years of data.

Table 5. Summary of Kentucky orchardgrass yield trials 2005-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington												Princeton					Quicksand					Mean[3] (#trials)
		2006[1,2]	2007	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019	2006	2008	2010	2012	2015	2005	2010	2013	2016	2018	
Variety	Proprietor	4-yr[4]	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	2-yr	3-yr	3-yr	3-yr	3-yr	2-yr	4-yr	3-yr	3-yr	3-yr	2-yr	
Albert	Oregro Seeds									99		106	100									98		101(4)
Aldebaran	DLF Pickseed										99													–
Alpine II	Mountain View Seeds									106														–
Ambrosia	American Grass Seed Prod.													90										–
BARDGLHLR	Barenbrug USA												82											–
Barlegro	Barenbrug USA											95											94	95(2)
Benchmark Plus	Southern States	100	108	105	106	97	109	104						107	104	102	107		102	94	102			103(14)
Berta	Mountain View Seeds										76													–
Blizzard	Allied Seed												105											–
Bounty	Allied Seed	101																	98					100(2)
Century	Seed Research of Oregon	98																	104					101(2)
Checkmate	Seed Research of Oregon		102			117											106							108(3)
Christoss	Proseeds Marketing		92																					–
Crown	Donley Seed			97											105									101(2)
Devour	Mountain View Seeds									98														–
Echelon	DLF Pickseed									99			101									113		104(3)
Elise	Rose-AgriSeed					86									98		98							94(3)
Endurance	DLF Pickseed									102				104								82		96(3)
Extend	Allied Seed				107											105				108				107(3)
Harvestar	Columbia Seeds	91	97				94							106					100		102			98(6)
Haymaster	Southern States	94			102														97					98(3)
Icon	Seed Research of Oregon	105																	98					102(2)
Inavale	DLF Pickseed								99	94								97				106		99(4)
Intensiv	Barenbrug USA											99											93	96(2)
Lazuly	Proseeds Marketing														97									–
Lyra	Hood River Seed								90		77							97						88(3)
Megabite	Turf-Seed														106									–
Olathe	DLF Pickseed								111	104								112				89		104(4)
Paiute	DLF Pickseed		108																					–
Persist	Smith Seed	105	106	107	112	106	100	103	111	98	111	103	105			105	102	101	101	102	103	107	126	106(20)
Potomac	Public			103	96	97	103	116	100	94	104	98			108	101	98	102		94	111	99		102(16)
Prairie	Turner Seed	107	101	109	106	113	123	108	103	111	111	105	99	100	104	99	104	96	107	120	102	105	107	106(22)
Prodigy	Caudill Seed			101		99	97			97			94		103		101				95			98(8)
Profit	Ampac Seed		107	96	98	103	96	97	89				97		103	102	102	96		115	96			100(14)
Quickdraw	Grassland Oregon												106											–
RAD-LCF 25	Radix Research															99				102				101(2)
Rushmore II	Mountain View seeds									98	111											102		104(3)
Shawnee	Rose-AgriSeed														86									–
SS0708OGDT	Southern States							91	105	101	111	109	102					100				99	100	102(9)
Swante	Smith Seed											88											79	84(2)
Tekena II	Smith Seed	102																	104					103(2)
Tekapo	Ampac Seed	91	81	82	78	82	76	80					99	98	86	92	82		91	81	89			86(15)
Treposno	Hood River Seed								92		99							99						97(3)
Tucker	Oregro Seeds				96							95		96	102	96				85			100	96(7)
Udder	Improved Forages	107																	99					103(2)
Vailliant	Proseeds Marketing		96																					–

[1] Year trial was established.
[2] Use 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 2012 was harvested three years, so the final report would be "2015 Orchardgrass Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.

Table 6. Summary of Kentucky tall fescue yield trials 2005-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Endophyte Status[1]	Proprietor	Lexington																			Quicksand				Mean[4] (#trials)
			05[2,3]	07	09	11	12	13	14	15	16	17	18	19	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	2-yr	3-yr	3-yr	3-yr	3-yr	2-yr	3-yr	2-yr	4-yr	3-yr	3-yr	3-yr	
Atlas Select	free	ProSeeds Marketing														95										–
Aprilia	free	ProSeeds Marketing														93										–
Armory	free	Barenbrug USA												97							95					–
Baguala	free	Allied Seed								92									96							94(2)
BarElite	free	Barenbrug USA		96		100											92									95(3)
BARFASTF-43	free	Barenbrug USA												101							83					92(2)
Bariane	free	Barenbrug USA	99																			95				94(3)
Barolex	free	Barenbrug USA	90																							–
BarOptima PLUS E34	novel	Barenbrug USA	122	99		107	108	102	99	113	99	90	95	104			99	100	96	105	105		93	118	85	102(19)
Bronson	free	Ampac Seed	88	97	105	102	99	99			100			105			101	91	103			102				99(11)
Brutus	free	Saddle Butte Ag. Inc.							90																	–
Bull	free	Improved Forages	102				100						100					99					95			99(7)
Cajun II	free	Smith Seed Services				97		105	99	99	98	107	109	97			101		104	91	109		90	96	104	100(15)
Cowgirl	free	Rose-AgriSeeds					94									102	100	98								99(4)
DLFPS-FTF 100 Protek	novel	DLF Pickseed												96							83					90(2)
Dominate	free	Allied Seed								90									99							95(2)
Drover	free	Barenbrug USA							105	120																113(2)
DuraMax GOLD	novel	DLF Pickseed				102									106											104(2)
Enhance	free	Allied Seed				93																				–
Estancia ArkShield	novel	Mountain View Seeds					106				96		105	98				102			99			103		101(7)
Flourish	free	Allied Seed					92											101								97(2)
FSG 402TF	free	Farm Science Genetics								92									103							98(2)
Goliath	free	Ampac Seed			100			104									99									101(3)
Greendale	free	DLF Pickseed												107							112					110(2)
Greendale Protek	novel	DLF Pickseed												108							118					113(2)
HyMark	free	Fraser Seeds				91				104						102			103							100(4)
Jesup EF	free	Pennington Seed				98	105										103	100								102(4)
Jesup MaxQ	novel	Pennington Seed	98	101	110	103	100	93	106	102	111	104	101			95	100	98	98	103		102	100	116	105	103(20)
Jesup MaxQII	novel	Pennington Seed												101												
Kentucky 32	free	Oregro Seeds				93	94		101				83	99		98	94	101								96(6)
Kokanee	free	Smith Seed Services												84												
Kora Protek	novel	DLF Pickseed									101													86		94(2)
KY31+	toxic	KY Agric Exp Sta.	108	102	102	93	95	103	100	99	103	101	107	77	104	93	112	101	92	105	106	110	110	110	107	102(23)
Lacefield MaxQ II	novel	Pennington Seed		109				97	104	93	92	94	106	110	101	106			105	100			113	102	95	101(14)
Martin2 Protek	novel	DLF Pickseed				104					96			105							100			106		102(5)
Nanryo	free	Jap. Grassland ForageSeed/		96																						–
Noria	free	ProSeeds Marketing		98																						–
Payload	free	Brett Young									89													111		100(2)
RAD-ERF50	free	Radix Research, Inc.														113										–
Ranchero	free	Smith Seed Services										92		101						96	106					99(4)
Savory	free	DLF Pickseed													91											–
Select	free	Southern States	99	99	98	90	100	97	103	97	102				102	105	99	100	99			91	99	86		92(17)
SS-0705TFSL	free	Southern States							99	99	106	111	94	111					103	101				101	104	101(9)
Stockman	free	Seed Research of OR													97											–
Teton II	free	Mountain View Seeds				107	105		96		103							99						91		100(6)

continued

Table 6 (continued).

Variety	Endophyte Status[1]	Proprietor	Lexington																		Quicksand				Mean[4] (#trials)
			05[2,3]	07	09	11	12	13	14	15	16	17	18	19	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	2-yr	3-yr	3-yr	3-yr	3-yr	2-yr	3-yr	2-yr	4-yr	3-yr	3-yr	3-yr	
Texoma MaxQ II	novel	Pennington Seed	95											106												–
TF0203G	free	Seed Research of OR		87																						–
Tower	free	DLF Pickseed									101			108							97			91		99(4)
Tower Protek	novel	DLF Pickseed				98					104			105							97			81		97(5)
Triumphant	free	DLF Pickseed												95							95					95(2)
Triumphant Protek	novel	DLF Pickseed												96							95					96(2)
Tuscany II	free	Seed Research of OR					97								98			106								–
Velvet	free	Oregro Seeds												91												–
5CAN	free	Brett Young			86																					–

[1] Free 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.
[2] Year trial was established.
[3] Use 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 2016 was harvested two years, so the final report would be "2019 Tall Fescue Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number of years of data.

Table 7. Summary of Kentucky bromegrass yield trials at Lexington 2006-2021 (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	2015	2016	2017	2018	2019	Mean[3] (#trials)
			4-yr[4]	3-yr	3-yr	3-yr	3-yr	3-yr	4-yr	3-yr	3-yr	2-yr	
AC Knowles	hybrid	Agriculture Canada	85		82	102	89						89(4)
Admiral	meadow	Cisco Seeds							107	106	100	101	104(4)
Arid	meadow	Mountain View Seeds							94	93			94(2)
Arsenal	meadow	Barenbrug USA									106	106	106(2)
Artillery	smooth	Barenbrug USA									100	100	100(2)
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	107	103	123	100	93	112(9)
Olga	smooth	Barenbrug USA		116	101								109(2()
Peak	smooth	Allied Seed		97		100		93	95	88	103		96(6)
Persister	prairie	DLF Pickseed		72									–
RAD-BI29	smooth	Columbia Seeds	96	86									91(2)

[1] Year trial was established.
[2] Use 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 2012 was harvested three years, so the final report would be "2015 Tall Fescue and Brome Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.

Table 8. Summary of Kentucky timothy yield trials 2000-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington															Quicksand		Princeton		
		00[1,2]	01	02	06	07	08	09	11	12	13	14	15	16	17	19	99	01	00	04	Mean[3]
Variety	Proprietor/KY Distributor	2yr[4]	3yr	4yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	2yr	2yr	2yr	3yr	2yr	(#trials)
Alma	Newfield Seeds Co/Caudill Seed Co.																			81	–
Anjo	Hood River Seed													81							–
Aurora	General Feed and Grain	100															98				99(2)
Barfleo	Barenbrug USA							95	91	101		108	80	97	94	91					96(8)
Barpenta	Barenbrug USA					74			82	82					94	89					84(5)
Carson	Mountain View Seeds														113	108					111(2)
Clair	Ky Agric. Exp. Station		104	113	107	95	107	104	112	99	97	111	107	88	88	82		106		122	103(16)
Classic	Cebeco International Seeds	100		86													86				91(3)
Climax	Canada Agr. Res. Station				79	102	104	98	102	100	82	96	90	102	92	97					95(12)
Colt	FS Growmark	105		100	90												112			99	101(5)
Common	Public		95																		–
Comtral	Caudill Seed									92	92										92(2)
Dawn	Hood River Seed														103	110					107(2)
Derby	Southern States				112	111		106	112	108	112	119	123	112		114				124	113(11)
Dolina	DLF Pickseed	99		90																	95(2)
Express	Seed Research of Oregon			95		91		97	95												95(4)
Hokuei	Snow Brand Seed	103																			–
Hokusei	Snow Brand Seed	96															99				98(2)
Joliette	Newfield Seeds Co/Caudill Seed Co.						86	89												90	88(3)
Jonaton	Newfield Seeds Co/Caudill Seed Co.																			84	–
KY Early	Smith Seed/Central Farm Supply	102	103	115			102				119				115	99	104	103			107(9)
Outlaw	Grassland West Company																		107		–
Richmond	Pickseed Canada Inc.	100															103				102(2)
Summergraze	Brett Young										96										–
Summit	Allied Seed, L.L.C.			112																	–
Talon	Seed Research of Oregon				110	112		108	106	109											109(5)
Tenho	Barenbrug USA											84									–
Treasure	Seed Research of Oregon				103	115		103	101	108											106(5)
Tundra	DLF Pickseed	95																			–
Tuukka	Ampac Seed Company		94	88														91	93		92(4)
Varis	Mountain View Seeds											83									–
Zenyatta	DLF Pickseed										103			119		110					111(3)

[1] Year trial was established.
[2] Use 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 2017 was harvested three years, so the final report would be "2020 Timothy and Kentucky Bluegrass Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.

Table 9. Summary of Kentucky bluegrass yield trials at Lexington 2004-2021 (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 2yr	Mean[3] (#trials)
Adam 1	Radix Research	98														–
Balin	Pure Seed												91	80		86(2)
Barderby	Barenbrug USA			94		101	91	98	87	103	101	103	128	120	108	103(11)
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	92	108(13)
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	100	99(5)
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)

[1] Year trial was established.
[2] Use 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 2017 was harvested three years, so the final report would be "2020 Timothy and Kentucky Bluegrass Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.

Table 10. Summary of Kentucky annual ryegrass yield trials 2003-2020 (yield shown as a percentage of the yield value of Marshall).

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	
Abundant	tetraploid	Ampac Seed				12																–
Acrobat	-[5]	Proseeds Marketing						144														–
AE110	Westerwold tetraploid	Pickseed USA, Inc.										89	100									95(2)
Amp	Westerwold tetraploid	Columbia Seeds													75							–
Assist	Westerwold diploid	SaddleButte													88							–
Attain	Westerwold tetraploid	Smith Seed Services								111					52	69					92	91(3)
Baqeuano	Westerwold tetraploid	Smith Seed Services																		77		–
Barmultra II	Italian tetraploid	Barenbrug USA								133				103	95		125	108				117(4)
Big Bang	Westerwold tetraploid	Brett Young														67						–
Big Boss	Westerwold tetraploid	Smith Seed Services								98				86	38	73						86(3)
Big Daddy	Westerwold tetraploid	FFR/Sou. St.								86	98	82										89(3)
Bill	Westerwold diploid	Smith Seed Services														62						–
Brangus	Italian tetraploid	KB SeedSolutions								94												–
Bruiser	Westerwold diploid	Ampac Seed						65	105	100		104	86		100	105	95	86	113		96	96(10)
Centurion	Westerwold diploid	Mountain View Seeds											97			132		100	117			112(4)
DH-3	Italian tetraploid	Allied Seed					91	27				89										69(3)
Diamond T	Italian tetraploid	Oregro Seeds				8																–
Dixie Gold	Westerwold tetraploid	Caudill Seed													19							–
DoubleDiamond	Westerwold tetraploid	Oregro Seeds																		84		–
Dyna-Gain	Westerwold diploid	Columbia Seeds													71							–
Ed	Westerwold diploid	Smith Seed Services								96					101	100						98(2)
Fantastic	Westerwold diploid	Ampac Seed				48	84															86(3)
Feast II	Italian tetraploid	Ampac Seed						35	113	109		81	93	71	47	56	88	80	87	65	86	80(12)
Flying A	Westerwold diploid	Oregro Seeds				39		59														–
Fox	Italian diploid	DLF Pickseed								109												–
Fria	Westerwold diploid	Allied Seed								95		87	89		104	81	85	98				89(6)
Frostproof	Westerwold diploid	Smith Seed Services																96			93	95(2)
GR-AS10	Italian	Ampac Seed								113												–
Graze-N-Gro	Westerwold diploid	Seed Research of OR	114				67															91(2)
Green Farm	Westerwold diploid	Smith Seed Services														85						–
Gulf	Westerwold diploid	Public					67	26	87	78		76	72		27	69	60	87	87	56	80	70(12)
Hellen	Westerwold tetraploid	Smith Seed Services																			95	–
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	94(16)
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	97(3)
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									–
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(17)
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	101(3)

continued

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	
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	91(8)
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	95(7)
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	105(7)

[1] In 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.
[2] Year trial was established.
[3] Use 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 one 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).
[4] Mean only presented when respective variety was included in two or more trials.
[5] Type was not provided by the company.

Table 11. Summary of Kentucky perennial ryegrass yield trials 2000-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

			Lexington																		Princeton		
			01[1,2]	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	00	02	Mean[3,4]
Variety	Type	Proprietor	2yr[5]	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	(#trials)
Aires	diploid	Ampac Seed	95																			93	94(2)
Albion	tetraploid	Grasslands Oregon													105	103							104(2)
Amazon	tetraploid	AgriBioTech			99																	107	103(2)
Anaconda	tetraploid	Caudill Seed																			95		–
Aubisque	tetraploid	Seed Research of OR		144																			–
Bandit	tetraploid	Grassland West																			106		–
Barvitra	diploid	Barenbrug USA														104				109			107(2)
Bastion C-2	tetraploid	Seed Research of OR			91																		–
Bestfor	tetraploid	Improved Forages																			113	107	110(2)
Best for Plus	hybrid tetraploid	Improved Forages		116	108	118																	114(3)
BG-34	diploid	Barenbrug USA				83	85				86		87	84	85	81		83					84(8)
Boost	tetraploid	Allied Seed						130	125	120	143	110	103	102						112			118(8)
Boxer	tetraploid	AgriBioTech																			106		–
Calibra	tetraploid	DLF Pickseed							96	109	81	99	103	96	87	100	98	98	89	95		112	97(13)
CAS MP64	diploid	Cascade International	97																				–
Citadel	tetraploid	Ag Canada																			94	113	104(2)
Crave	tetraploid	Ampac Seed											95										–
Elena DS	tetraploid	Allied Seed											110				110						110(2)
Eurostar	tetraploid	Seed Research of OR						112															–
Everlast	diploid	Caudill Seed												104									–
Feeder	diploid	Seed Research of OR						76															–
Grand Daddy	tetraploid	Smith Seed	118				101	109		76	92	84	86		107							111	98(9)
Green Gold	tetraploid	Grasslands Oregon					96																–
Herbal	- -[7]	ProSeeds Marketing							77														–
Impressario	tetraploid	DLF Pickseed								107			92										100(2)
Kentaur	tetraploid	DLF Pickseed										106		117									112(2)
Lactal	tetraploid	Brett Young								102													–
Lasso	diploid	DLF Pickseed	98																				–
LHT-102	tetraploid	Ampac Seed											114										–
Linn (certified)	diploid	Public	98	98	102		98	85	84	101	92	93	80	95	83	89	83	74	98	103	87	88	91(19)
Manhatten	diploid	–																				85	–
Matrix	diploid	Cropmark seeds		77																			–
Maverick Gold	hybrid tetraploid	Ampac Seed	97																			71	84(2)
Melpetra	tetraploid	Hood River Seed															83						–
Orantas	diploid	DLF Pickseed								82													–
Ortet	tetraploid	Oregro Seeds							114														–
PayDay	tetraploid	Mountain View Seeds											101	103	99		87	108	95	92			98(7)
Polly II	tetraploid	FS Growmark																			110		–
Polly Plus	hybrid tetraploid	Allied Seed		64																			–
Power	tetraploid	Ampac Seed						110	103	102	100	109	104	95	101	107				98			103(10)
Polim	tetraploid	DLF Pickseed									106												–
Quartermaster	tetraploid	Radix Research				122																	–
Quartet	tetraploid	Ampac Seed	97			56		46														113	78(4)
RAD-CPS212	hybrid tetraploid	Radix Research				134																	–
RAD-MI125	hybrid tetraploid	Mountain View Seeds					120																–
Remington	tetraploid	Barenbrug USA													95	117	109	108	105	83			103(6)
Remington PLUS NEA2[6]	tetraploid	Barenbrug USA													119	99			105	91			104(4)

continued

Table 11 (continued).

Variety	Type	Proprietor	Lexington																		Princeton		Mean[3,4] (#trials)
			01[1,2]	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	00	02	
			2yr[5]	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	
Sierra	diploid	Lewis Seed Co.				89																	–
TetraGain	tetraploid	Pure Seed											111										–
TetraMag	tetraploid	Mountain View Seeds											110		136		127	124	121	118			123(6)
TetraSweet	tetraploid	Mountain View Seeds															104	105	87	98			99(4)
Tonga	tetraploid	Kings AgriSeeds				96				103													100(3)
Verseka	tetraploid	Allied Seed											75										–
Victorian	diploid	Caudill Seed												104	83								94(2)
Yatsyn	diploid	Barenbrug USA																			89		–

[1] Year trial was established.
[2] Use 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 2012 was harvested three 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).
[3] Mean only presented when respective variety was included in two or more trials.
[4] In perennial ryegrass, low-yielding varieties usually result from winterkill or summer mortality.
[5] Number of years of data.
[6] Remington PLUS NEA2 contains a non-toxic (novel) endophyte.
[7] Type was not provided by the company.

Table 12. Summary of Kentucky festulolium yield trials 2001-2021 (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]	2005	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2019	
			2yr[6]	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	3yr	3yr	3yr	2yr	
Agula	MF x IR	Allied Seed					94									–
Barfest	MF x PR	Barenbrug USA					105	101	107	119	91	92	92			101(7)
Bonus	MF x IR	Allied Seed					93	46	32	34						51(4)
Duo	MF x PR	Ampac Seed		89	98	99	95	106	103	96	96	83	83	80	98	94(12)
Felina	(TF x IR) x TF	DLF Pickseed	104				132	118	134	114	96					116(6)
Fojtan	(TF x IR) x TF	DLF Pickseed					112	101	124	92	72	94	100	108	82	98(9)
Gain	MF x IR	Allied Seed					103	77	52	75						77(4)
Hostyn	MF xIR	DLF Pickseed							107	110	106		108			108(4)
Hykor	(TF x IR) x TF	DLF Pickseed					133	141	153	131	119	121	112		93	125(8)
InaMerlin	MF x IR	Hood River Seed											88	77		83(2)
Kenfest	MFx AR	KY Agr. Exp Station												97		–
Lofa	(TF x Int) x Int	DLF Pickseed					105	107	110	128	112	91	109	108	104	108(9)
Mahulena	(TF x IR) x TF	DLF Pickseed							131	109	107		111	114		114(5)
Meadow Green	--[7]	Pure Seed							37	34						36(2)
Perseus	MF x IR	DLF Pickseed					132	114	126	123	110	109	105	112	116	116(9)
Perun	MF x IR	DLF Pickseed					127	114	107	131	110	102	99	110	107	112(9)
Rebab	(TFxIR) xTF	DLF Pickseed								94	77					86(2)
Spring Green	MF x PR	Turf-Seed	96	111	114	101	113	112	114	110	103	107	92	94	101	105(13)
Sweet Tart	MF x IR	ProSeeds Marketing			88		82	63	62							74(4)

[1] The festuloliums were in fescue trials from 2001-2005 and in perennial ryegrass trials from 2008-2009.
[2] MF = meadow fescue, TF = tall fescue, IR = Italian ryegrass, PR = perennial ryegrass, Int = intermediate ryegrass.
[3] Year trial was established.
[4] Use 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 2012 was harvested three 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).
[5] Mean only presented when respective variety was included in two or more trials.
[6] Number of years of data.
[7] Type was not provided by the company.

Table 13. Summary of Kentucky pearl millet yield trials 2013-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 14. Summary of Kentucky sudangrass yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 15. Summary of Kentucky sorghum-sudangrass yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 16. Summary of Kentucky forage sorghum yield trials 2013-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 17. Summary of Kentucky teff yield trials 2008-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 18. Summary of Kentucky crabgrass yield trials 2016-2021 (yield shown as a percentage of the mean of the commercial varieties in the trial).

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

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

Table 19. Summary of Kentucky spring oats yield trials 2015-2021 (planted mid March to early April) [yield shown as a percentage of the mean of the commercial varieties in the trial].

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

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

Table 20. Summary of 2002-2021 Kentucky white clover grazing tolerance trials in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the test).

Variety	Type	Proprietor	2002[1,2] 2yr[6]	2004 4yr	2006[3] 2yr	2006 2yr	2008[4] 3yr	2008 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	2013 4yr	2014 3yr	2015 4yr	2016 4yr	2017 4yr	2018 3yr	2019 2yr	Mean[5] (#trials)
Alice	Intermediate	Barenbrug USA		59	98									93	71	79	97	96	100	87(8)
Barblanca	Intermediate	Barenbrug USA		118	91	151														120(3)
Canterbury	Dutch	Allied Seed											51	93						72(2)
Colt	Intermediate	Seed Research of OR		114	134	122														123(3)
Crescendo	Ladino	Cal/West	84			72														78(2)
Durana	Intermediate	Pennington		83	105	103		115	102	107	126	86	81	113	152	86	102	79	102	103(15)
GWC-AS10	–[7]	Ampac Seed								77										–
Insight	Ladino	Allied Seed				77														–
Ivory	Intermediate	DLF Pickseed	132	142																137(2)
Ivory II	Intermediate	DLF Pickseed					102													–
Kakariki	Ladino	Luisetti Seeds															97			–
Kopu II	Intermediate	Ampac Seed			77	122	96		93	113	112	86	106	93	87	107		100	98	99(13)
KY Select	Intermediate	KY Agr Ex. Sta.						105		83										94(2)
Neches	–[7]	Barenbrug USA													104				99	102(2)
Patriot	Intermediate	Pennington		110	137	122		100	111	110	123	102	132	109	123	107	111	111	106	114(15)
Pinnacle	Ladino	Allied Seed									87									–
Rampart	–[7]	Oregro Seeds						90												–
Regal	Ladino	Public	92		57	54		93		103										80(5)
Regal Graze	Ladino	Cal/West			84	87	105	90	87	93	72	94	81	102	87	107	87	103	90	91(15)
Renovation	Intermediate	Smith Seed											102	100	55		97		100	91(5)
Resolute	Intermediate	Southern States			101	106					65									91(3)
Seminole	Ladino	Saddle Butte Ag. Inc.		75		97	91						89	85						97(5)
Tillman II	Ladino	Caudill Seed	92																	–
WBDX	Dutch	Saddle Butte Ag. Inc.								70										–
Will	Ladino	Allied Seed			117	87	107	105	108	143	115	133	157	111	120	114	108	110	106	116(15)

[1] Year trial was established.
[2] Use 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 test. For example, the trial planted in 2016 was grazed for four years so the final persistence report would be "2020 Red and White Clover Grazing Tolerance Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] This trial was planted in the spring of 2006 due to poor establishment of the fall 2005 planting.
[4] This trial was planted in the spring of 2008 due to poor establishment of the fall 2007 planting.
[5] Mean only presented when respective variety was included in two or more trials.
[6] Number of years of data.
[7] Type was not provided by the company.

Table 21. Summary of Kentucky alfalfa grazing trials, 2000-2021 (stand persistence shown as a percent of the grazing tolerant Alfagraze).

		Variety Characteristics[1]																						
			Disease Resistance[2]					2000[3,4]	2000	2001	2004	2005	2006	2008	2009	2010	2011	2012	2013	2014	2016	2017	2019	Mean[5]
Variety	Proprietor	FD	BW	FW	AN	PRR	APH	2yr[6]	3yr	3yr	4yr	4yr	3yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	4yr	2yr	2yr	(#trials)
ABT 350	W-L Research	3	HR	HR	HR	HR	HR		46															–
ABT 405	W-L Research	4	HR	HR	HR	HR	R		46	100														73(2)
Alfabar	Barenbrug USA	3	HR	HR	HR	HR	HR/R																59	–
Alfagraze	America's Alfalfa	3	MR	R	MR	R	–	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(16)
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR										110							–
Alfagraze 600 RR	America's Alfalfa	6	–	R	HR	R	R													12				–
Amerigraze 401+Z	America's Alfalfa	4	HR	HR	HR	HR	R	26	85	125														79(3)
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR					141	144	50		91		144	118	65				108(7)
Ameristand 403TPlus	America's Alfalfa	4	HR	HR	HR	HR	HR								133		90				50	150	118	108(5)
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR					136			50		80							89(3)
Apollo	America's Alfalfa	4	R	R	R	R	–	17	31	25		36	27	25	17	27	70	55	86	24				37(12)
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR								33		83							58(2)
Bulldog-505	Univ. of GA	5	–	HR	–	R	–											144	100	57				100(3)
FK 421	Donley Seed Co.	4	HR	HR	HR	HR	HR			100														–
Feast	Garst Seeds	3	HR	HR	HR	HR	R	87	92															90(2)
Grazeking	Southern States	5	MR	HR	HR	R	S			50														–
Haygrazer	Great Plains Research	4	HR	HR	R	R	MR		38															–
Integrity	PGI Alfalfa	4	HR	HR	HR	HR	HR					172												–
LegenDairy5.0	Croplan Genetics	3	HR	HR	HR	HR	HR							0			87							44(2)
PGI 424	Producer's Choice	4	HR	HR	HR	HR	HR									45								–
PGI 459	Producer's Choice	4	HR	HR	HR	HR	HR								17		93							55(2)
Rebel	Target Seed	4	HR	HR	HR	HR	HR						79											–
Rugged	Target Seed	3	HR	HR	HR	HR	HR						146											–
Saranac AR (cert.)	Public	4	MR	R	HR	LR	–			100													35	68(2)
Spredor 3	Syngenta	1	HR	HR	R	MR	S					68												–
Spredor 4	Syngenta	2	HR	HR	HR	HR	R							25										–
TS 4007	Producer's Choice	4	HR	R	HR	HR	HR									82								–
TS 4010/A4535	Producer's Choice	4	HR	R	HR	HR	HR								83	145	120							116(3)
Triple Trust 450	ABI/America's Alfalfa	5	HR	HR	HR	HR	HR					145												–
115 Brand	Monsanto	3	HR	HR	R	HR	R	56	85															71(2)
5432	Pioneer	4	HR	HR	–	MR	–				51													–

[1] Variety characteristics: FD = fall dormancy, BW = bacterial wilt, FW = fusarium wilt, AN = anthracnose, PRR = phytophthera root rot, APH = aphanomyces root rot. Information provided by seed companies.
[2] Disease 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/2019_Alfalfa_Variety_Leaflet.pdf).
[3] Year trial was established.
[4] Use 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 test. For example, the Lexington trial planted in 2011 was grazed for four years, so final persistence report would be "2015 Alfalfa Grazing Tolerance Report," archived in the UK Forage website (https://forages.ca.uky.edu).
[5] Mean only presented when respective variety was included in two or more trials.
[6] Number of years of data.

Table 22. Summary of 2001-2021 Kentucky tall fescue grazing tolerance trials in Lexington (stand persistence shown as a percent of the stand rating of KY 31+).

Variety	Endophyte Status[1]	Proprietor	2001[2,3] 4yr[5]	2002 4yr	2003 4yr	2004 4yr	2005 4yr	2006 4yr	2007 4yr	2008 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	2013 4yr	2014 4yr	2015 4yr	2016 4yr	2017 4yr	2018 3yr	Mean[4] (#trials)
Advance MaxQ	novel	Pennington Seed						94													–
Baguala	free	Allied Seed															99				–
Bariane	free	Barenbrug USA			89		75	47	29												60(4)
BarElite	free	Barenbrug USA							96												–
Barolex	free	Barenbrug USA					78	101	86												88(3)
BarOptima PLUS E34	novel	Barenbrug USA					100		97			98	100	98	100	100	100	100	96	91	98(11)
Bronson	free	Ampac Seed									98	98						100			99(3)
Bull	free	Caudill Seed													96			100	98	95	97(4)
Cajun II	free	Smith Seed Services										98				97	100	100	99	96	98(6)
Cattle Club	free	Green Seed	91																		–
Carmine	free	DLF-Jenks	90																		–
Cowgirl	free	Rose Agri-Seed				99								99							99(2)
Dominate	free	Allied Seed															99				–
Drover	free	Barenbrug USA															99				–
Festival	free	Pickseed West	100	101																	101(2)
FSG 402TF	free	Farm Service Genetics															99				–
Flourish	free	Allied Seed												98							–
Goliath	free	Ampac Seed										98						100			99(2)
HyMark	free	Fraser Seeds								95			100								98(2)
Jesup MaxQ	novel	Pennington Seed		103	97		68	102	97	97	99	98	100	99	99	99	100	100	100	98	97(16)
Johnstone	free	Proseeds	92																		–
KY31+	toxic	KY Agri. Exp Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(18)
KY31-	free	KY Agri. Exp Sta.	98	103	98	100	83	101	100	98	99	99	100	100	99	100	100	100	99	91	98(18)
Lacefield MaxQ II	novel	Pennington Seed					82	102	99	98	98	97			100	99	100	100	99	100	98(12)
Maximize	free	Rose Agri-Seed	99																		–
Nanryo	free	Japanese Grassland For.Seed							100												–
Orygun	free	–		99																	–
Ranchero	free	Smith Seed Services																	98		–
Select	free	Southern States	101	100	100		67	100	93	95	97	100	100	99	99	99	101				97(14)
SS0705TFSL	free	Southern States														100	100	100	99	97	99(5)
Stargrazer	free	Southern States	89																		88(2)
Stockman	free	Seed Res. of OR				102															–
Texoma MaxQ II	novel	Pennington Seed					88	100	98												95(3)
Tuscany II	free	Seed Res. of OR						101													–
Verdant	free	Am.Grass Seed						97													–

[1] Free 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.
[2] Year trial was established.
[3] Use 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 in 2016 was grazed four 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).
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number of years of data.

Table 23. Summary of 2000-2021 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] 4yr[5]	2001 4yr	2002 4yr	2003 4yr	2004 4yr	2005[3] 4yr	2007 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	20133 4yr	2014 4yr	2015 4yr	2016 4yr	2017 4yr	2018 3yr	Mean[4] (#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)
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	137	113(10)
Potomac (certified)	Public			116		119									109	82	109		107(5)
Prairie	Turner Seed	127	121								94		131	90	97	107	60	114	105(9)
Prodigy	Caudill Seed												109	119		94	109	92	104(4)
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)
Takena	Smith Seed Services		99																–
Seco	Southern States							85											–
SS0708OGDT	Southern States													128	131	118	106	107	118(5)
Swante	Smith Seed Services																	49	–

[1] Year trial was established.
[2] Use 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 2016 was grazed four 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).
[3] Due to high variation during 2005 and 2013 trials these values are not included in the overall mean.
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number 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 2000-2021 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	2000[1,2] 4yr[4]	2001 3yr	2003 4yr	2007 4yr	2008 4yr	2010 4yr	2011 4yr	2012 4yr	2013 4yr	2014 4yr	2015 4yr	2016 4yr	2017 4yr	2018 3yr	Mean[3] (#trials)
AGRLP103	–	AgResearch USA	128		86												107(2)
Albion	tetraploid	Grassland Oregon											120				–
Aries	diploid	Ampac Seed		139													–
Barfest (FL)	MF x PR[6]	Barenbrug USA						116	112								114(2)
Barvitra	diploid	Barenbrug USA											35				–
BG-34	diploid	Barenbrug USA											83				–
Boost	tetraploid	Allied Seed					101	83	95	104							96(4)
Calibra	tetraploid	DLF International								120		88	97	98		102	101(5)
Citadel	tetraploid	Donley Seed	107														–
Duo (FL)	MF x PR6	Ampac Seed	116				95	72	90	115			70	65			89(7)
Lasso	diploid	DLF-Jenks		130													–
Linn (certified)	diploid	Public	112	129	63		95	108	95	103	96	80	74	88	79	96	94(13)
Maverick	tetraploid	Ampac Seed		36													–
Meadow Green (FL)	MF x IR[6]	Pure Seed								15							–
Melpetra	tetraploid	Hood River Seed												90			–
PayDay	tetraploid	Mountain View Seeds									101	85			99	97	96(4)
Polly II	tetraploid	FS Growmark	36	68													52(2)
Power	tetraploid	Ampac Seed				158		107	112	109	89	79	83				105(7)
Quartet	tetraploid	Ampac Seed		77		59											68(2)
Remington	tetraploid	Barenbrug USA			151							138	180	169	124	107	145(6)
Remington PLUS NEA2[5]	tetraploid	Barenbrug USA										145	171			107	141(3)
Spring Green (FL)	MF x PR6	Rose Agri-Seed	101				109	115	115	120			87	88			105(7)
TetraGain	tetraploid	Pure Seed								112					90		101(2)
TetraMag	tetraploid	Mountain View Seeds														93	–
TetraSweet	tetraploid	Mountain View Seeds														98	–
Victorian	diploid	Caudill Seed									114				109		112(2)

[1] Year trial was established.
[2] Use 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 2016 was grazed four years so the final report would be "2020 Cool-Season Grass Grazing Tolerance Report" archived in the UK Forage website (htpps://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.
[5] Remington PLUS NEA2 contains a non-toxic (novel) endophyte.
[6] MF=meadow fescue, PR=perennial ryegrass, IR=Italian ryegrass.

Table 25. Summary of 2002-2021 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] 4-yr[5]	2003 4-yr	2004 4-yr	2005 4-yr	2006 4-yr	2007 4-yr	2008 4-yr	2009 4-yr	2010 4-yr	2011 4-yr	2012 4-yr	2013 4-yr	2014 4-yr	2015 4-yr	2016 4-yr	2017 4-yr	2018 3-yr	Mean[4] (#trials)
BarOptima PLUS E34[6]	novel	Barenbrug USA						107			101	101	95	104	99	99	101	100		101(9)
Cajun II	free	Smith Seed Services												96			101			99(2)
Cowgirl	free	Rose Agri-Seed							105				99							102(2)
Jesup MaxQ	novel	Pennington Seed	98			78			104	97	100	101	97	105	98	100	99	101	99	98(13)
KY31+	toxic	KY Agri. Exp.Sta.				102	109	120	107	101	101	101	99	105	99	100	101	100	99	103(14)
KY31-	free	KY Agri. Exp.Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(17)
Lacefield MaxQ II	novel	Pennington Seed					105	110		98				104		100	100	100	98	102(8)
Nanryo	free	Japanese Grassland Forage Seed						72												–
Seine	free	Seed Research of Oregon			135															–
Select	free	Southern States	109	94	99	73	104	76	108	98	100	101	98	98	97	100				97(14)
SS0705TFSL	free	Southern States													98	100	100	101	99	100(5)
Stockman	free	Seed Research of Oregon			125															–

[1] Free 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.
[2] Year trial was established.
[3] Use 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 2016 was grazed four 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).
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number of years of data.
[6] BarOptima PLUS E34 is not recommended for pregnant mares because it produces low levels of the alkaloid ergovaline.

Table 26. Summary of 1999-2021 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] 3-yr[5]	2000 4-yr	2001 4-yr	2002 4-yr	2005[3] 4-yr	2006 4-yr	2009 4-yr	2010 4-yr	2011 4-yr	2012 4-yr	2013 4-yr	2014 4-yr	2015 4-yr	2016 4-yr	2017 4-yr	2018 3-yr	Mean[4] (#trials)
Albert	Univ. of Wisconsin			95														–
Ambrosia	Amer.Grass Seed Prod.						61											–
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										87							–
Haymate	Southern States	96	85		97													93(3)
Persist	Smith Seed Services					114		103	101	92	112	146	95	123	109	116	134	113(11)
Potomac	Public				117											65		91(2)
Prairie	Turner Seed			100										92	95	112	78	95(5)
Prodigy	Caudill Seed											54					72	63(2)
Profit	Ampac Seed							93	86		92		108					95(4)
SS-0708OGDT	Southern States									104			92	77	95	107	117	99(6)
Tekapo	Ampac Seed	101	115		93	30		92	100	83	87	63		108				94(9)

[1] Year trial was established.
[2] Use 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 2010 was grazed four years so the final report would be "2014 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Due to high variation during 2005 these values are not included in the overall mean.
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number of years of data.