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

2018 Long-Term Summary of Kentucky Forage Variety Trials

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

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 an environmentally friendly role in soil conservation, water quality, and air quality. There are over 60 forage species adapted to the climate and soil conditions of Kentucky. Only 10 to 12 of these species occupy the majority of the acreage, but within these species there is a tremendous variation in varieties.

This publication was developed to provide a user-friendly guide to choosing the best variety for producers based on a summary of forage yield and grazing tolerance trials conducted in Kentucky over the past 12 to 15 years. Detailed variety reports and forage management publications are available from your local county agent or at the University of Kentucky forage website at forages.ca.uky.edu by clicking on the "Forage Variety Trial" link.

Species in This Report

Red clover (*Trifolium pratense* L.) 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* L.) 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*) has historically been 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 (*Dactylus 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. This grass, used for both hay and pasture, is the forage base for most of Kentucky's livestock enterprises, particularly beef cattle. 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 type) are increasing 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.

List of Tables **page**

Table 1. White Clover Yield 2
Table 2. Red Clover Yield. 3
Table 3. Alfalfa Yield 4
Table 4. Roundup Ready Alfalfa Yield 6
Table 5. Tall Fescue Yield 7
Table 6. Orchardgrass Yield 9
Table 7. Timothy Yield 11
Table 8. Kentucky Bluegrass Yield 12
Table 9. Annual Ryegrass Yield 13
Table 10. Perennial Ryegrass Yield 15
Table 11. Festulolium Yield 17
Table 12. Bromegrass Yield 17
Table 13. Sudangrass Yield 18
Table 14. Sorghum-Sudangrass Yield 18
Table 15. Pearl Millet Yield 19
Table 16. Forage Sorghum Yield 19
Table 17. Teff Yield 19
Table 18. Spring Oats Yield 20
Table 19. White Clover Grazing 20
Table 20. Alfalfa Grazing 21
Table 21. Tall Fescue Grazing 22
Table 22. Orchardgrass Grazing 23
Table 23. Perennial Ryegrass/Festulolium Grazing 24
Table 24. Tall Fescue Horse Grazing 25
Table 25. Orchardgrass Horse Grazing 26

Table 1. Summary of Kentucky white clover yield trials 2002-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

			Lexington																Princeton		Quicksand	Eden Shale	
			02[1,2]	03	04	06	07	08	09	10	11	12	13	14	15	16	17	03	05	03	03	Mean[3]
Variety	Type	Proprietor	3yr[4]	3yr	3-yr	2-yr	2-yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	2yr	3yr	2yr	3yr	3-yr	2yr	2yr	(#trials)
Advantage	Ladino	Allied Seed, L.L.C.		125																	106	116(2)
Alice	Intermediate	Barenbrug USA												105	120	78	95		86			98(5)
Avoca	Dutch	DLF Pickseed				59													82			71(2)
Barblanca	Intermediate	Barenbrug USA		92																		–
Bombus	Ladino	Hood River														111	113					112(2)
Brianna	Ladino	DLF Pickseed														103	103					103(2)
CA ladino	Ladino	Public	100		124													103		98		106(4)
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												91(3)
Crescendo	Ladino	Cal/West Seeds	105			140													109			118(3)
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								–
Durana	Intermediate	Pennington		94		94	88	82	85	97	93	84	97	89	78	99	86	87	83	101	95	90(17)
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															110					–
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							–
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	90	104	100	98	99	104(17)
Pinnacle	Ladino	Allied Seed, L.L.C.				120													111			116(2)
Rampart	Ladino	Allied Seed, L.L.C.					80	89	97	83												87(4)
Regal	Ladino	Public	99	96	92		125	100	116	118	129	147	123					107	100	104		112(13)
RegalGraze	Ladino	Cal/West Seeds				127	140	102	103						111	119	115					117(7)
Renovation	Intermediate	Smith Seed Services												83	85	91						85(3)
Resolute	Intermediate	Southern States				63																–
RIVENDEL	–	DLF Pickseed														59	84					72(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	104		136			131(14)

[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 3 years, so the final report would be "2012 Red and White Clover Report" archived in the KY Forage website at <forages.ca.uky.edu>.

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

[4] Number of years of data

Timothy (*Phleum pratense*) is the fourth most widely sown cool-season perennial grass used in Kentucky for forage 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

Table 2. Summary of Kentucky red clover yield trials 2001-2018 (yield shown as a percentage of the mean of the named commercial varieties in the trial).

		Lexington														Princeton							Quicksand					Eden Shale			
		01[1,2]	02	03	04	06	08	09	10	11	12	13	14	15	16	03	05	08	09	11	13	15	01	03	05	08	10	03	08	10	Mean[3]
Variety	Proprietor	3yr[4]	3yr	3yr	3yr	2yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	2yr	3yr	3yr	2yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	(#trials)
AA117ER	ABI Alfalfa					110											87								92						96(3)
Bearcat	Brett Young Seeds														122																–
Cinnamon Plus	Southern States			97		109	112	123	117	94	116	101	98				112	102	102	100	100				103	108	124		108	122	108(19)
Common O	Public								96	97	63	84	92	70	49						67	91					72			77	78(11)
Dominion	Seed Research of OR					102											95	102							93				109		100(5)
Duration	Cisco Co.	86	100																				106								97(3)
Emarwan	Turf-Seed				91			117											106				101				99				103(5)
Evolve	DLF Pickseed USA													98	96							99									98(3)
FF9615	LaCrosse Seed														110																–
Freedom!	Barenbrug USA	127	123	96	118	91	100	108	106	109	99	101	97	107	114	110	136	107	116	95	107	104	111	103	119	106	115	102	100	140	109(29)
Freedom!MR	Barenbrug USA		118	115	102	114	114		112							106	101		108					94	111		128	118		125	112(14)
FSG 402	Allied Seed											104									114										108(2)
FSG 9601	Allied Seed				89																										–
Gallant	Turner Seed											101		112							107	101									105(4)
Juliet	Caudill Seed							84										93	90										84	59	82(5)
Kenland (cert.)	KY Ag.Exp Sta.	127	139	118	117	117	99	111	99	116	114	109	103	105	119	102	92	113	106	106	115	100	111	88	105	104	123	98	110	138	110(29)
Kenland (uncert)	Public								82						41			74					83				67		66	92	72(7)
Kenton	KY Ag.Exp Sta.	119	109	90	95	112	121									95	105	112	94				93	99	106	98		98			103(15)
Kenway	KY Ag.Exp Sta.	111	134		97	119	118										94	106	103				100		103	94					107(11)
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	97			95																		98								97(3)
RedlanGraze II	Americas Alfalfa	91	104																				93								96(3)
Redland Max	ABI Alfalfa				95																										–
Robust II	Seed Research of OR																	110											108		109(2)
Rocket	Seed Research of OR																	106											108		107(2)
Rojo Diablo	Great Plains	99																					101								100(2)
Royal Red	Southern States		91																												–
Rustler	Oregro Seeds						83		101	84																94	99			104	94(6)
Sienna	Great Plains	91																					106								99(2)
Solid	Production Service		98	84		79										87	86								76			84			85(7)
SS-0303RCG	Southern States												103	109	150						103	104									114(5)
Starfire	Ampac Seed		99																												–
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)
Vesna	DLF-Jenks	53																					96								75(2)
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 3 years, so the final report would be "2012 Red and White Clover Report" archived in the KY Forage website at <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 2000-2018 (yield shown as a percentage of the mean of the commercial varieties in the test).

		Variety Characteristics[1]							Lexington										Princeton						Bowling Green[2]		Eden Shale	
			Disease Resistance[3]					00[4,5]	02	04	06	08	11	12	15	16	01	05	08	09	11	13	03	06	03	Mean[6]
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	5yr[7]	5yr	5yr	7yr	6yr	6yr	6yr	4yr	3yr	4yr	5yr	5yr	6yr	4yr	3yr	3yr	4yr	4yr	(# 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)
AC Longview	Newfield Seeds	–	HR	–	–	–	–			83																–
Adrenalin	Brett Young Seeds	4	HR	HR	HR	HR	HR													104						–
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR				99	91	102	94			97		100	101	107	99				99(9)
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR								103	103				94						100(3)
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							108												–
Anchormate	ProSeed Marketing	–	–	–	–	–	–					100														–
Arc (certified)	Public	4	LR	MR	HR	–	–	91	96	76			93	91			99	95	86			95	98			92(10)
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	–	–	–	–	–	–		90	82	86	80	89		88			95	78	87		91		81	95	87(12)
Bulldog-505	Univ. of GA	5	–	HR	–	R	–							102		98				96		103				100(4)
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR							99	105	97					99					100(4)
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR														106					–
Contender	Beck's Hybrids	5	HR	HR	HR	HR	HR								99	103										101(2)
DK 140	Monsanto	4	HR	HR	HR	HR	HR		95								100									98(2)
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						101		101(2)
Enforcer	Southern States	4	HR	HR	HR	HR	HR			90														82		86(2)
Escalade	Allied Seeds	5	HR	HR	HR	HR	HR																	106		–
Evermore	Southern States	5	HR	HR	HR	HR	HR							99		100						105	101	103		102(5)
Expedition	NEXGROW	5	HR	HR	R	RR	R			107	112							96								105(3)
Feast +EV	NEXGROW	3	HR	HR	HR	R	HR			106													101		96	101(3)
Fierce	Beck's Hybrids	4	HR	HR	HR	HR	HR								101											–
FSG 403LR	Farm Sci. Genetics	4	HR	HR	HR	HR	HR															102				–
FSG 406	Allied Seeds	4	HR	HR	HR	HR	HR																110			–
FSG 408DP	Allied Seeds	4	HR	HR	HR	HR	R			105									110							108(2)
FSG 415BR	Allied Seeds	4	HR	HR	HR	HR	HR									104										–
FSG 424	Farm Sci. Genetics	4	HR	HR	HR	HR	HR															109				–
FSG 426	Farm Sci. Genetics	4	HR	HR	HR	HR	HR								101											–
FSG 505	Allied Seeds	5	HR	HR	HR	HR	R																106		108	107(2)
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										–
GA-535	Pref. Alf. Genetics	5	HR	HR	HR	HR	HR															107				–
Geneva	NEXGROW	4	HR	HR	HR	HR	HR	106	103								104									104(3)
Genoa	NEXGROW	4	HR	HR	HR	RR	HR			112		99						98	118							107(4)
GH 744	NEXGROW	4	HR	HR	HR	HR	MR		104																	–
Gunner	Croplan Genetics	5	HR	HR	HR	HR	HR														103					–
Integrity	PGI Alfalfa	4	HR	HR	HR	HR	HR																		101	–
KingFisher 243	Cal/West	5	HR	HR	HR	HR	HR													98						–
Kingfisher 4020	Byron Seeds	4	HR	HR	HR	HR	HR						101													–
L447HD	Legacy Seeds	4	HR	HR	HR	HR	HR				105															–

continued

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: Smooth bromegrass (*Bromus inermis Leyss*) 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 Roem. & Schult*) 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

Table 3. *continued*

Variety	Proprietor	Variety Characteristics[1]							Lexington										Princeton						Bowling Green[2]		Eden Shale		Mean[6]
			Disease Resistance[3]					00[4,5]	02	04	06	08	11	12	15	16	01	05	08	09	11	13	03	06	03			
		FD	Bw	Fw	An	PRR	APH	5yr[7]	5yr	5yr	7yr	6yr	6yr	6yr	4yr	3yr	4yr	5yr	5yr	6yr	4yr	3yr	3yr	4yr	4yr	4yr	(# trials)
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						110		104(3)
Mariner III	Allied Seeds	4	HR	HR	HR	HR	HR												99								–
Mountaineer 2.0	Croplan Gen.	5	HR	HR	HR	HR	HR			108																	–
Optimus	Brett Young Seeds		HR	HR	HR	HR	HR															98					–
PerForm	Dairyland Research	4	HR	HR	HR	HR	HR				106																–
PGI 459	Alforex Seeds	4	HR	HR	HR	HR	R					102															–
PGI 529	Alforex Seeds	5	HR	HR	HR	HR	HR							105													
Phirst	UniSouth Genetics	4	HR	HR	HR	HR	R											105						102		104(2)
Phoenix	Southern States	5	HR	HR	HR	HR	R			113	99	102		105					101		94			96		101(7)
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				108		104(3)
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									101										–
Regal	Great Plains	5	HR	HR	R	HR	MR																103		94	99(2)
Reward II	PGI Alfalfa	4	HR	HR	R	HR	R								99	95	103					94		103	100(4)
Saranac AR (certified)	Public	4	MR	R	HR	LR	–	93	87	77	85	86	91	96	95	95	92	95	88	92	82	97	99	89	95	91(18)
Summer Gold	Beck's Hybrids	4	HR	HR	HR	HR	HR			107								100						105		103(2)
TripleTrust 450	ABI Alfalfa	5	HR	HR	HR	HR	HR																				–
TripleTrust 500	Central Farm Supply	5	HR	HR	HR	HR	HR						108														–
USG 681HY	UniSouth Genetics	6	HR	HR	HR	HR	–												113								–
Vernal	Public	2	R	MR	–	–	–		93									95								94(2)
Withstand	Southern States	4	HR	HR	HR	HR	HR				100	90		96					100		87			114		98(6)
WL 319HQ	W-L Research	3	HR	HR	HR	HR	HR		108																		–
WL 327	W-L Research	4	HR	HR	HR	HR	HR		105																		–
WL 338SR	W-L Research	4	HR	HR	HR	HR	HR		101																		–
WL 343HQ	W-L Research	4	HR	HR	HR	HR	HR				101	110							100							104(3)
WL 348AP	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					101		106	109(4)
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									95										–
4m76	FFR/Sou. St.	4.7	HR	HR	R	HR	R		116																	–
4030	Brett Young Seeds	4	HR	HR	HR	HR	HR							103												–
5-star	Croplan Gen.	5	R	HR	R	R	R																97		99	98(2)
53H92	Pioneer	3	HR	HR	HR	HR	HR						95													–
54Q32	Pioneer	4	HR	HR	HR	HR	HR						99													–
54V46	Pioneer	4	R	HR	HR	HR	R																		99	–
55V48	Pioneer	5	HR	HR	HR	HR	HR						102													–
55V50	Pioneer	5	HR	R	Hr	HR	HR							109								105				108(2)
54V54	Pioneer	4	HR	HR	HR	HR	HR	98	94								105									99(3)
54V56	Pioneer	–	–	–	–	–	–																98			–
6400HT	NEXGROW	4	HR	HR	HR	HR	HR			108													96			102(2)
6415	NEXGROW	4	HR	HR	HR	HR	HR											103						105		104(2)

continued

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, and to maintain productive stands for several years, it is necessary to manage at least one growth cycle each year for seed production and natural reseeding. 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.

All bromegrasses have several advantages over tall fescue, including retaining quality as they mature and better growth

Table 3. *continued*

		Variety Characteristics[1]						Lexington										Princeton						Bowling Green[2]		Eden Shale	
			Disease Resistance[3]					00[4,5]	02	04	06	08	11	12	15	16	01	05	08	09	11	13	03	06	03	Mean[6]
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	5yr[7]	5yr	5yr	7yr	6yr	6yr	6yr	4yr	3yr	4yr	5yr	5yr	6yr	4yr	3yr	3yr	4yr	4yr	(# trials)
6417	NEXGROW	4	HR	HR	HR	HR	HR					105														–
6420	NEXGROW	4	HR	R	HR	R	HR		106																	–
6422Q	NEXGROW	4	HR	HR	HR	HR	HR						112							102						107(2)
6530	NEXGROW	5	HR	HR	HR	HR	HR																92			–
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] The Bowling Green test is on soil infested with phytophthora and aphanomyces root rots.
[3] Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.
[4] Year trial was established
[5] 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 6 years, so the final yield report would be "2013 Alfalfa Report" archived in the KY Forage website at forages.ca.uky.edu.
[6] Mean only presented when respective variety was included in two or more trials.
[7] Number of years of data

Table 4. Summary of Kentucky Roundup Ready alfalfa yield trials 2011-2018 (yield shown as a percentage of the mean of the commercial varieties in the test).

		Variety Characteristics[1]						Lexington		Princeton			Quicksand	
			Disease Resistance[2]					12[3,4]	15	11	13	15	14	Mean[5]
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	6yr[6]	4yr	5yr	4yr	2yr	2yr	(# trials)
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	95	95	93	99	93		95(5)
Alfagraze 600 RR	America's Alfalfa	6	–	R	HR	R	R		100			85	93	93(3)
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	100	102	97	100	98	93	98(6)
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	92	99		95	96	107	98(5)
Ameristand 445TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	105	103		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			96			97(2)
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	98		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		96		104		111	104(3)
54R02 RR	Dupont Pioneer	4	HR	HR	HR	HR	HR	97	108	104		102	97	102(5)
55VR06 RR	Dupont Pioneer	5	HR	R	HR	HR	HR		92				99	96(2)
55VR08 RR	Dupont Pioneer	5	–	HR	HR	HR	HR		105			110		108(2)
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.
[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 5 years, so the final yield report would be "2015 Alfalfa Report" archived in the KY Forage website at <forages.ca.uky.edu>.
[5] Mean only presented when respective variety was included in two or more trials.
[6] Number of years of data

during dry weather, but they are generally less well adapted in Kentucky.

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

Table 5. Summary of Kentucky tall fescue yield trials 2002-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Endophyte Status[1]	Proprietor	Lexington												Princeton								Quicksand				Mean[4]
			03[2,3]	05	07	09	11	12	13	14	15	16	02	04	06	08	10	12	15	03	05	13	16	
			2-yr[5]	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	3-yr	3-yr	2-yr	2-yr	4-yr	3-yr	2-yr	(#trials)
Atlas Select	free	ProSeeds Marketing														95								–
Aprilia	free	ProSeeds Marketing														93								–
Baguala	free	Allied Seed									92								96					94(2)
BarElite	free	Barenbrug USA			96		100										92							95(3)
Bariane	free	Barenbrug USA	87	99																	95			94(3)
Barolex	free	Barenbrug USA		90																				–
BarOptima PLUS E34	novel	Barenbrug USA		122	99		107	108	102	99	113	98					99	100	96			93	119	104(13)
Bronson	free	Ampac Seed		88	97	105	102	99	99			99					101	91	103		102			99(11)
Brutus	free	Saddle Butte Ag. Inc.								90														–
Bull	free	Improved Forages	98	102				100					104					99		97		95		99(7)
Cajun II	free	Smith Seed Services					97		105	99	99	93					101		104			90	96	98(9)
Cowgirl	free	Rose-AgriSeeds						94								102	100	98						99(4)
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							107										100(2)
Estancia ArkShield	novel	Mountain View Seeds	102					106				94	101					102					104	102(6)
Festival	free	Pickseed West												102										–
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)
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	109	94			95	100	98	98	100	102	100	115	101(18)
KENHY	free	KY Agric Exp Sta.												89										–

continued

characterized by drought, low soil fertility, and high temperature. It is higher yielding than foxtail millet and regrows rapidly after harvest if an 8- to 10-inch stubble height is left. Dwarf varieties, which are leafier and better suited for grazing, are available.

The brown midrib or BMR trait is outward expression of a genetic mutation in forage sorghum, sorghum-sudangrass, sudangrass, and pearl millet. In most cases, plants possessing the BMR trait contain less or altered lignin, making the plant more digestible and increasing animal production. Therefore, it is desirable to seed summer annuals which 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.

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 at www.uky.edu/Ag/Forage.

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)

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

Table 5. *continued*

Variety	Endophyte Status[1]	Proprietor	Lexington										Princeton						Quicksand				Mean[4]
			03[2,3]	05	07	09	11	12	13	14	15	16	02	04	06	08	10	12	15	03	05	13	16	
			2-yr[5]	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	3-yr	3-yr	2-yr	2-yr	4-yr	3-yr	2-yr	(#trials)
Kentucky 32	free	Oregro Seeds					93	94		101						98	94	101						96(6)
Kora Protek	novel	DLF Pickseed										104											89	97(2)
KY31+	toxic	KY Agric Exp Sta.	112	108	102	102	95	103	100	99	107	104		104	93	112	101	92	98	110	110	105	103(20)
Lacefield MaxQ II	novel	Pennington Seed			109				97	104	93	93			101	106			105			113	100	101(10)
Martin2 Protek	novel	DLF Pickseed					104					96											109	103(3)
Nanryo	free	Jap. Grassland ForageSeed			96																			–
Noria	free	ProSeeds Marketing			98																			–
Payload	free	Brett Young										93											112	103(2)
RAD-ERF50	free	Radix Research, Inc.														113								–
Savory	free	DLF Pickseed													91									–
Seine	free	Advanta Seeds												96										–
Select	free	Southern States	94	99	99	98	90	100	97	103	97	103	97	105	102	105	99	100	99	102	91	99	84	98(21)
SS-0705TFSL	free	Southern States								99	99	106							103				103	102(5)
Stockman	free	Seed Research of OR	108											101	97					105				103(4)
Teton II	free	Mountain View Seeds					107	105		96		105						99					91	101(6)
Texoma MaxQ II	novel	Pennington Seed		95																				–
TF0203G	free	Seed Research of OR			87																			–
Tower	free	DLF Pickseed										101											94	98(2)
Tower Protek	novel	DLF Pickseed					98					104											80	94(3)
Tuscany	free	Forage Genetics																						–
Tuscany II	free	Seed Research of OR						97							98			106						100(3)
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 2012 was harvested 2 years, so the final report would be "2015 Tall Fescue Report" archived in the KY Forage website at <forages.ca.uky.edu>.

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

[5] Number of years of data.

with a disk drill. Plots were 5 feet by 15 feet in a randomized complete block design with four replications. 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. 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 to simulate a spring cut hay/summer grazing/fall stockpile management system. 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 check stand survival 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.

Results and Discussion

These tables summarize long-term yield and stand persistence data of commercial varieties that have been entered in the University of Kentucky 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 grazing trials, varieties with percentages over 100 persisted better than average, and varieties with percentages less than 100 persisted less than average. Also in the grazing trials,

Table 6. Summary of Kentucky orchardgrass yield trials 2002-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington										Princeton								Quicksand						
		2003[1,2]	2006	2007	2009	2011	2012	2013	2014	2015	2016	2002	2004	2006	2008	2010	2012	2015	2003	2005	2010	2013	2016	Mean[3]
Variety	**Proprietor**	**3-yr[4]**	**4-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**	**3-yr**	**3-yr**	**2-yr**	**3-yr**	**4-yr**	**3-yr**	**3-yr**	**2-yr**	(#trials)
Abertop	Pennington											71												–
Albert	Oregro Seeds										100												98	99(2)
Alpine II	Mountain View Seeds										107													–
Ambassador	DLF Pickseed												95											–
Ambrosia	American Grass Seed Prod.													90										–
Benchmark	Southern States											113												–
Benchmark Plus	Southern States		100	108	105	106	97	109	104			107		107	104	102	107		107	102	94	102		104(16)
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																				–
Command	Seed Research of Oregon												87											–
Crown	Donley Seed				97							101			105									101(3)
Crown Royale Plus	Donley Seed											108							97					103(2)
Devour	Mountain View Seeds										97													–
Echelon	DLF Pickseed										97												110	104(2)
Elise	Rose-AgriSeed						86								98		98							94(3)
Endurance	DLF Pickseed										101			104									84	96(3)
Extend	Allied Seed					107							100			105					108			105(4)
Hallmark	James VanLeeuwen	102										103	98						96					100(4)
Harvestar	Columbia Seeds		91	97				94						106						100		102		100(6)
Haymaster	Southern States		94			102														97				98(3)
Haymate	Southern States											106							103					105(2)
Icon	Seed Research of Oregon		105																	98				102(2)

continued

the alfalfa varieties were compared to Alfagraze, and the fescue varieties were compared to KY31+ instead of the mean of all the commercial varieties. In the horse grazing trials, the fescue varieties were compared to KY31- instead of the mean of all the commercial varieties. Direct, statistical comparisons of varieties cannot be made using the summary tables, but these comparisons 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 the information can be found in the yearly reports. See the footnote in each table to determine which yearly report should be referenced.

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 2018 reports on the forage website. See below for specific reports. The forage website (forages.ca.uky.edu) contains all reports from 2001 through 2018.

Table 6. *continued*

		Lexington										Princeton							Quicksand					Mean[3] (#trials)
		2003[1,2]	2006	2007	2009	2011	2012	2013	2014	2015	2016	2002	2004	2006	2008	2010	2012	2015	2003	2005	2010	2013	2016	
Variety	Proprietor	3-yr[4]	4-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	3-yr	3-yr	2-yr	3-yr	4-yr	3-yr	3-yr	2-yr	
Inavale	DLF Pickseed									99	94							97					107	99(4)
Intensiv	Barenbrug	102																						–
Lazuly	Proseeds Marketing														97									–
LG-31	DLF Pickseed												92											–
Lyra	Hood River Seed									90								97						94(2)
Megabite	Turf-Seed														106									–
Niva	DLF Pickseed											81												–
Olathe	DLF Pickseed									111	106							112					89	105(4)
Paiute	DLF Pickseed			108																				–
Persist	Smith Seed	123	105	106	107	112	106	100	103	111	99		101			105	102	101	108	101	102	103	107	105(19)
Potomac	Public				103	96	97	103	116	100	92	98			108	101	98	102			94	111	99	101(15)
Prairie	Turner Seed		107	101	109	106	113	123	108	103	111	104		100	104	99	104	96	105	107	120	102	103	106(20)
Prodigy	Caudill Seed				101		99	97			98				103		101					95		99(7)
Profit	Ampac Seed			107	96	98	103	96	97	89					103	102	102	96			115	96		100(13)
RAD-LCF 25	Radix Research															99					102			101(2)
Rushmore II	Mountain View seeds										99												101	100(2)
Shawnee	Rose-AgriSeed														86									–
Shiloh II	Proseeds Marketing												117											–
SS0708OGDT	Southern States								91	105	100							100					102	100(5)
Takena	Smith Seed											100												–
Tekena II	Smith Seed	110	102										109						106	104				106(5)
Tekapo	Ampac Seed		91	81	82	78	82	76	80					98	86	92	82		105	91	81	89		86(15)
Treposno	Hood River Seed									92								99						96(2)
Tucker	Oregro Seeds					96								96	102	96					85			95(5)
Udder	Improved Forages	100	107									102							106	99				103(5)
Vailliant	Proseeds Marketing			96																				–
Vision	Cropmark Seeds	63																	67					65(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 3 years, so the final report would be "2015 Orchardgrass Report" archived in the KY Forage website at <forages.ca.uky.edu>.
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.

Yield and Grazing Tolerance Reports

Individual forage species reports can be found at www.uky.edu/Ag/Forage/ForageVarietyTrials2.htm.

- 2018 Alfalfa Report (PR-743)
- 2018 Red and White Clover Report (PR-744)
- 2018 Orchardgrass Report (PR-745)
- 2018 Tall Fescue and Bromegrass Report (PR-746)
- 2018 Timothy and Kentucky Bluegrass Report (PR-747)
- 2018 Annual and Perennial Ryegrass and Festulolium Report (PR-748)
- 2018 Alfalfa Grazing Tolerance Report (PR-749)
- 2018 Red and White Clover Grazing Tolerance Report (PR-750)
- 2018 Cool-Season Grass Grazing Tolerance Report (PR-751)
- 2018 Cool-Season Grass Horse Grazing Report (PR-752)
- 2018 Annual Grass Report: Warm Season and Cool Season (Cereals) (PR-753)
- 2018 Long-Term Summary of Kentucky Forage Variety Trials (PR-754)

About the Authors

G.L. Olson is a research specialist, S.R. Smith and J.C. Henning are Extension professors and forage specialists, and C.D.Teutsch is an Extension associate professor and forage specialist.

Table 7. Summary of Kentucky timothy yield trials 2000-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington													Quicksand		Princeton		
Variety	Proprietor/KY Distributor	00[1,2] 2yr[4]	01 3yr	02 4yr	06 3yr	07 3yr	08 3yr	09 3yr	11 3yr	12 3yr	13 3yr	14 3yr	15 3yr	16 2yr	99 2yr	01 2yr	00 3yr	04 2yr	Mean[3] (#trials)
Alma	Newfield Seeds Co/Caudill Seed Co.																	81	–
Anjo	Hood River Seed													80					–
Auroro	General Feed and Grain	100													98				99(2)
Barfleo	Barenbrug USA							95	91	101		108	80	101					96(6)
Barpenta	Barenbrug USA					74			82	82									79(3)
Clair	Ky Agric. Exp. Station		104	113	107	95	107	104	112	99	97	111	107	88		106		122	105(14)
Classic	Cebeco International Seeds	100		86											86				91(3)
Climax	Canada Agr. Res. Station				79	102	104	98	102	100	82	96	90	101					95(10)
Colt	FS Growmark	105		100	90										112			99	101(5)
Common	Public		95																–
Comtral	Caudill Seed									92	92								92(2)
Derby	Southern States				112	111		106	112	108	112	119	123	113				124	114(10)
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				104	103			107(7)
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			117					110(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 3 years, so the final report would be "2015 Timothy and Kentucky Bluegrass Report" archived in the KY Forage website at <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 bluegrass yield trials at Lexington 2004-2018 (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 2yr	Mean[3] (#trials)
Adam 1	Radix Research	98											–
Barderby	Barenbrug USA			94		101	91	98	87	103	101	100	97(8)
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	97	108(10)
Kenblue	Public	102	133				96	95	118	95	100		106(7)
Lato	Turf Seed Inc.			122									–
Park (certified)	Public								90	95	104	127	104(4)
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											80	–

[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 3 years, so the final report would be "2015 Timothy and Kentucky Bluegrass Report" archived in the KY Forage website at <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 annual ryegrass yield trials 2000-2018 (yield shown as a percentage of the yield value of Marshall).

Variety	Type	Proprietor	Lexington[1]																	Princeton		Mean[4] (#trials)
			03[2,3]	04	05	06	07	08	09	10	10	11	12	12	13	14	15	16	17	00	02	
Abundant	tetraploid	Ampac Seed				12																–
Acrobat	–	Proseeds Marketing						144														–
AE110	Westerwold tetraploid	Pickseed USA, Inc.										89	100									95(2)
Amp	Westerwold tetraploid	Columbia Seeds													75							–
Andy	Westerwold tetraploid	DLF Pickseed																		97		–
Assist	Westerwold diploid	SaddleButte													88							–
Attain	Westerwold tetraploid	Smith Seed Services								111					52	69						90(2)
Avance	Westerwold diploid	DLF Pickseed																		107		–
Barextra	Italian tetraploid	Barenbrug USA																			121	–
Barmultra II	Italian tetraploid	Barenbrug USA								133				103	95		125	108				117(4)
Big Bang	–	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								88	87	88(5)
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	121			96(9)
Common	–	Public																		83	87	85(2)
Centurion	Westerwold diploid	Mountain View Seeds											97			132		100	126			114(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							–
Domino	Italian tetraploid	DLF Pickseed																			120	–
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													88		86(3)
Feast II	Italian tetraploid	Ampac Seed						35	113	109		81	93	71	47	56	88	80	93		127	88(11)
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)
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	93	79	79	72(12)
Hercules	Westerwold tetraploid	Barenbrug USA												91	68					108		100(2)
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	113		90	94(15)
Jumbo	Westerwold tetraploid	Barenbrug USA	112																94			103(2)
KB Royal	Italian diploid	KB SeedSolutions								83												–
Koga	Westerwold tetraploid	Smith Seed Services																	101			–
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	107	100	100	100(17)
Maximo	Intermediate tetraploid	Pickseed USA, Inc.										101										–
Maximus	Westerwold tetraploid	Barenbrug USA																	67			–
Melquatro	Italian tetraploid	Hood River Seed															135		78			107(2)

continued

Table 9. *continued*

Variety	Type	Proprietor	Lexington[1]																		Princeton		Mean[4] (#trials)
			03[2,3]	04	05	06	07	08	09	10	10	11	12	12	13	14	15	16	17	00	02	
Meroa	Westerwold diploid	Smith Seed Services														93	102					98(2)
MX 108	Westerwold tetraploid	Pickseed USA, Inc.										95	114									105(2)
Nelson	Westerwold tetraploid	The Wax Co.									86			93	65	77	105	97	78			89(6)
Oryx	Italian diploid	Hood River Seed															100					–
Passerel Plus	Westerwold diploid	Pennington Seed																			103	–
Primecut	Westerwold brand	Oregro Seeds										94										–
Rio	Westerwold diploid	–																		98	99	99(2)
Spark	tetraploid	DLF Pickseed																				–
Stockaid	diploid	–				82																–
Striker	Westerwold tetraploid	Seed Research of OR					90															–
TAMTBO	Italian tetraploid	Tex. Ag Exp Sta.						47		101		108	95			79						86(5)
Tam 90	Italian diploid	Tex. Ag Exp Sta.						49								78					88	72(3)
TetraPrime	Italian tetraploid	Mountain View Seeds											101			96	104	91	106			100(5)
TetraPro	Italian tetraploid	Tex. Ag Exp Sta.						40														–
TillageRootMax	Westerwold diploid	Cover Crop Solutions										82	90									86(2)
TillageMax-Bristol[5]	Westerwold diploid	Cover Crop Solutions										90	91									91(2)
TillageMax-INDY[5]	Westerwold diploid	Cover Crop Solutions										89	90									90(2)
T-Rex	Westerwold tetraploid	SaddleButte				11																–
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			121			111(5)
Winter Star	Italian tetraploid	Ampac Seed																			99	–
Zorro	Italian tetraploid	DLF Pickseed																		132	134	133(2)

[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 1 year, so the final report would be "2016 Annual and Perennial Ryegrass and Festulolium Report" archived in the KY Forage website at <forages.ca.uky.edu>.
[4] Mean only presented when respective variety was included in two or more trials.
[5] These are TillageRootMax that included crimson clover and/or tillage radish.

Table 10. Summary of Kentucky perennial ryegrass yield trials 2000-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

			Lexington															Princeton		Bowling Green		
			01[1,2]	03	04	05	06	07	08	09	10	11	12	13	14	15	16	00	02	00	03	Mean[3,4]
Variety	Type	Proprietor	2yr[5]	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	2yr	2yr	3yr	2yr	2yr	(#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		103		99(2)
Aubisque	tetraploid	Seed Research of OR		144																	99	122(2)
Bandit	tetraploid	Grassland West																106		114		110(2)
Barvitra	diploid	Barenbrug USA														104						–
Bastion C-2	tetraploid	Seed Research of OR			91																	–
Bestfor	tetraploid	Improved Forages																113	107	120		113(3)
Best for Plus	hybrid tetraploid	Improved Forages		116	108	118															136	120(4)
BG-34	diploid	Barenbrug USA				83	85				86		87	84	85	81						84(7)
Bison	hybrid tetraploid	International Seeds																			140	–
Boost	tetraploid	Allied Seed						130	125	120	143	110	103	102								119(7)
Boxer	tetraploid	AgriBioTech																106				–
Calibra	tetraploid	DLF Pickseed							96	109	81	99	103	96	87	100	96		112			98(10)
CAS MP64	diploid	Cascade International	97																			–
Citadel	tetraploid	Ag Canada																94	113	103		103(3)
Crave	tetraploid	Ampac Seed											95									–
Derby	–	Public																		74		–
Elena DS	tetraploid	Allied Seed											110				111					111(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	–	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	82	87	88	77		90(17)
Manhatten	diploid	–																	85			–
Mara	diploid	Barenbrug USA																		85		–
Matrix	diploid	Cropmark seeds		77																	64	–
Maverick Gold	hybrid tetraploid	Ampac Seed	97																71			84(2)
Melpetra	tetraploid	Hood River Seed															84					–
Orantas	diploid	DLF Pickseed								82												–
Ortet	tetraploid	Oregro Seeds							114													–
PayDay	tetraploid	Mountain View Seeds											101	103	99		88					98(4)
Polly II	tetraploid	FS Growmark																110		125		118(2)
Polly Plus	hybrid tetraploid	Allied Seed		64																	60	62(2)
Power	tetraploid	Ampac Seed						110	103	102	100	109	104	95	101	107						104(9)
Polim	tetraploid	DLF Pickseed									106											–
Quartermaster	tetraploid	Radix Research				122																–

continued

Table 10. *continued*

Variety	Type	Proprietor	Lexington															Princeton		Bowling Green		Mean[3,4] (#trials)
			01[1,2]	03	04	05	06	07	08	09	10	11	12	13	14	15	16	00	02	00	03	
			2yr[5]	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	2yr	2yr	3yr	2yr	2yr	
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					107(3)
Remington PLUS NEA2	tetraploid	Barenbrug USA													119	99						109(2)
Sierra	diploid	Lewis Seed Co.				89																–
TetraGain	tetraploid	Pure Seed											111									–
TetraMag	tetraploid	Mountain View Seeds											110		136		128					125(3)
TetraSweet	tetraploid	Mountain View Seeds																				
Tonga	tetraploid	Kings AgriSeeds				96				103							102					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 3 years, so the final report would be "2015 Annual and Perennial Ryegrass and Festulolium Report" archived in the KY Forage website at <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

Table 11. Summary of Kentucky festulolium yield trials 2001-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).[1]

			Lexington											
Variety	Type[2]	Proprietor	2001[3,4] 2yr[6]	2005 3yr	2008 3yr	2009 3yr	2010 3yr	2011 3yr	2012 2yr	2013 3yr	2014 2yr	2015 3yr	2016 2yr	Mean[5] (#trials)
Agula	MF x IR	Allied Seed					94							–
Barfest	MF x PR	Barenbrug USA					105	101	107	119	91	92	91	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	82	95(10)
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	96	99(7)
Gain	MF x IR	Allied Seed					103	77	52	75				77(4)
Hostyn	MF xIR	DLF Pickseed							107	110	106		112	109(4)
Hykor	(TF x IR) x TF	DLF Pickseed					133	141	153	131	119	121	112	130(7)
InaMerlin	MF x IR	Hood River Seed											84	–
Lofa	(TF x Int) x Int	DLF Pickseed					105	107	110	128	112	91	109	109(7)
Mahulena	(TF x IR) x TF	DLF Pickseed							131	109	107		113	115(4)
Meadow Green	–	Pure Seed							37	34				36(2)
Perseus	MF x IR	DLF Pickseed					132	114	126	123	110	109	109	118(7)
Perun	MF x IR	DLF Pickseed					127	114	107	131	110	102	100	113(7)
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	91	107(11)
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 3 years, so the final report would be "2015 Annual and Perennial Ryegrass and Festulolium Report" archived in the KY Forage website at <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 12. Summary of Kentucky bromegrass yield trials at Lexington 2006-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Type	Proprietor/KY Distributor	2006[1,2] 4-yr[4]	2008 3-yr	2010 3-yr	2012 3-yr	2014 3-yr	2015 3-yr	2016 2-yr	Mean[3] (#trials)
AC Knowles	hybrid	Agriculture Canada	85		82	102	89			89(4)
Admiral	meadow	Cisco Seeds							104	–
ARID	meadow	Mountain View Seeds							97	–
Bigfoot	hybrid	Grassland Oregon	108	116	105					110(3)
Canterbury	mountain	Barenbrug USA		79						–
Carlton	smooth	Pickseed USA				82	95			91(2)
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	104	115(6)
Olga	smooth	Barenbrug USA		116	101					109(2()
Peak	smooth	Allied Seed		97		100		93	95	96(4)
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 3 years, so the final report would be "2015 Tall Fescue and Brome Report" archived in the KY Forage website at <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 13. Summary of Kentucky sudangrass yield trials 2008-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington											Princeton		Mean[3] (#trials)
		2008[1,2]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017	2018	
		All trials are 1 year yields													
AS9301 BMR[4]	Alta Seeds/Ramer Seed					118									–
AS9302 BMR (Brachytic Dwarf)	Alta Seeds/Ramer Seed										124	104	119	117	116(4)
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	86	99	92(13)
ProMax BMR	Ampac Seed	95	101	110	115	96	103	100	111	111	106	102	96	84	102(13)
SS130 BMR	Cal/West Seeds			101	103		107	106	110	109	99				105(7)
Trudan Headless	Chromatin							118							–

[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 sorghum-sudangrass yield trials 2008-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington											Princeton		Mean[3] (#trials)
		2008[1,2]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017	2018	
		All trials are 1 year yields													
AS6402 BMR[4] (Brachytic Dwarf)	Alta Seeds/Ramer Seed					91					78	82	98	98	89(4)
AS6503 BMR	Alta Seeds/Ramer Seed						96	103	90						96(3)
AS6504 BMR (Dry Stalk)	Alta Seeds/Ramer Seed										105	103	114	112	109(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						–
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	130	108	115(8)
KFSugar-Pro55S	Byron Seed										110				–
MS 202 BMR	Farm Science Genetics			106											–
Nutra-King BMR	Gayland Ward Seed								110	108	96	113	108	114	108(6)
NutraPlus BMR	Public	106	97	94	103	106	109	106	96						102(8)
Sordan Headless	Chromatin							105							–
Special Effort	Public	109	110	93	94	115	120	91	111						105(8)
SS211	Southern States				104	93	114	103	118	111	121	118	109	87	108(10)
SS220 BMR	Southern States		107	84		112									101(3)
Surpass BMR	Turner Seed	81	80	64						79	84	75	88	97	81(8)
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							–
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	103	108	98(5)
Vita-Cane	Gayland Ward Seed					121									–

[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 pearl millet yield trials 2013-2018 (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	2017	2018	
		All trials are 1 year yields								
FSG 300 Hybrid	Farm Science Genetics			109	99	109		117		109(4)
FSG 315 BMR[4] (Dwarf)	Farm Science Genetics			101	102	81		97		95(4)
Leafy22 Hybrid	Turner Seed				105	124	108	115	100	110(4)
Pennleaf Hybrid	Pennington Seed	93	91	94	96	87	98	84	93	92(8)
PP102M Hybrid	Cisco Seeds	93	93	90	79	90	91	77	104	90(8)
SS501	Southern States	90	99	96	86	94	94	89	96	93(8)
SS635	Southern States	108	112	101	116	94	110	107	115	108(8)
Sweet Summer	Cisco Seeds						86		85	86(2)
Tifleaf III Hybrid	Gayland Ward Seed	116	106	108	116	120	113	114	112	113(8)
Wonderleaf	Alta Seed								100	–

[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 2013-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington						Mean[3] (#trials)
		2013[1,2]	2014	2015	2016	2017	2018	
AF7201 BMR[4]	Alta Seed/Ramer Seed	89	81	101	89			90(4)
AF7401 BMR (Brachytic Dwarf)	Alta Seed/Ramer Seed	76	94	90	83	86	72	84(6)
Ensilemaster	Caudill Seed	125	90	101	106	111	129	110(6)
FSG114 BMR	Farm Science Genetics		94	128	93	125	91	106(5)
FSG115 BMR (Brachytic Dwarf)	Farm Science Genetics		51	31	72	81	74	62(5)
GW2120	Gayland Ward Seed	117	89	113	84	107	88	100(6)
GW400 BMR	Gayland Ward Seed	93	79	128	78	91	88	93(6)
GW475 BMR	Gayland Ward Seed						80	–
GW600 BMR	Gayland Ward Seed		107	111	90		90	100(4)
KFFiber-Pro70FS	Byron Seed					65	53	59(2)
NK300	Chromatin		126	110	101	116	135	118(5)
SD1741 BMR	Chromatin		133	92	103	81	84	99(5)
SilageKing BMR (Dwarf)	Gayland Ward Seed		48					–
SiloPro BMR (Dwarf)	Gayland Ward Seed			24	74		63	54(3)
SS405	Chromatin		188	183	207	138	202	184(5)
XF7203 BMR (Brachytic Dwarf)	Alta Seed/Ramer Seed					74	73	74(2)
1990	Chromatin		121	89	118	125	177	126(5)

[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 17. Summary of Kentucky teff yield trials 2008-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Princeton		Lexington									Mean[3] (#trials)
	2008[1,2]	2009	2008	2009	2010	2011	2012	2013	2014	2015	2016	
	All trials are 1 year yields											
Corvallis	94	112	81	101	91	101	96	100	110	96	102	99(11)
Dessie	102	87	99	92	96	94	95	97	101	104	105	97(11)
Excaliber	109	111	109	104	125	108	106	103				109(8)
Highveld	111	115	100	121	106	101	109	103	102			108(9)
HorseCandi	91	84	99	105	89	108	94	97	80	104	82	94(11)
Moxie								94	96	105	107	101(4)
Pharaoh	95	101	105	85	106	106	97	101	93	97	94	98(11)
Rooiberg	102	107	112	109	113	108	115	102	88			106(9)
Summer Delight		90		91	96	88	93	100	119	101	104	98(9)
Tiffany	102	106	102	93	82	93	102	98	104	97	105	99(11)
VA T1 Brown		89		99	87	91	94	98	104	97	101	96(9)
Velvet		94		100	97	98	95	103	95	99	100	98(9)
Witkope	94	100	93	101	115	103	101	104	107			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.

Table 18. Summary of Kentucky spring planted spring oats yield trials 2015-2018 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/ Distributor	2015[1,2]	2016	2017	2018	Mean[3] (#trials)
		All trials are 1 year yields				
CCSO-102	Caldbeck Consulting				95	–
CCSO-120 (black hulled)	Caldbeck Consulting				106	–
Common	Central Farm Supply	89				–
Excel	Ag. Alumni Seed, IN	120	101	111	107	110(4)
Jerry	Caudill Seed	107	93	103	99	101(4)
Persik (black hulled)	Caldbeck Consulting		112	114	127	118(3)
PST-241	Caldbeck Consulting	91	86	86	86	87(4)
PST5O200	Caldbeck Consulting	102	90	87	79	90(4)
PST5O-288C	Caldbeck Consulting	91	102	88	97	95(4)
Reins	Ag. Alumni Seed, IN	94			102	98(2)
Robust	Ag. Alumni Seed, IN	104	111	117	102	109(4)
Saber	Ag. Alumni Seed, IN	104			100	102(2)
VNK	Public		97	107	101	102(2)
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 19. Summary of 2002-2018 Kentucky white clover grazing tolerance trials with 2 or more years of data in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the test).

Variety	Type	Proprietor	2002[1,2]	2004	2006[3]	2006	2008[4]	2008	2009	2010	2011	2012	2013	2014	2015	2016	Mean[5] (#trials)
			2yr[6]	4yr	2yr	2yr	3yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	3yr	2yr	
Alice	Intermediate	Barenbrug USA		59	98									93	97	95	88(5)
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	108	108	103(12)
GWC-AS10	–	Ampac Seed								77							–
Insight	Ladino	Allied Seed				77											–
Ivory	Intermediate	DLF Pickseed	132	142													137(2)
Ivory II	Intermediate	DLF Pickseed					102										–
Kopu II	Intermediate	Ampac Seed			77	122	96		93	113	112	86	106	93	107	100	100(11)
KY Select	Intermediate	KY Agr Ex. Sta.						105		83							94(2)
Neches	–	Barenbrug USA													100		–
Patriot	Intermediate	Pennington		110	137	122		100	111	110	123	102	132	109	111	105	114(12)
Pinnacle	Ladino	Allied Seed									87						–
Rampart	–	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	86	90	89(12)
Renovation	Intermediate	Smith Seed											102	100	91		98(3)
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	101	102	116(12)

[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 2010 was grazed for 4 years so the final persistence report would be "2014 Red and White Clover Grazing Tolerance Report" archived in the KY Forage website at <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.

Table 20. Summary of 1998-2018 Kentucky alfalfa grazing trials with 2 or more years of data in Lexington (stand persistence shown as a percent of the grazing tolerant Alfagraze).

		Variety Characteristics[1]						Lexington															Mean[5] (#trials)
			Disease Resistance[2]					1998[3,4]	2000	2000	2001	2004	2005	2006	2008	2009	2010	2011	2012	2013	2014	2016	
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	3yr[6]	2yr	3yr	3yr	4yr	4yr	3yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	2yr	
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)
Alfagraze	America's Alfalfa	2	MR	R	MR	R	–	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(15)
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	56	26	85	125												73(4)
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				116	113(3)
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	–	47	17	31	25		36	27	25	17	27	70	55	86	24		37(13)
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR									33		83					58(2)
Baralfa 54	Barenbrug USA	–	R	HR	HR	HR	HR	78															–
Bulldog-505	Univ. of GA	5	–	HR	–	R	–												144	100	57		100(3)
FK 421	Donley Seed Co.	4	HR	H	H	H	H				100												–
Feast	Garst Seeds	3	HR	HR	HR	HR	R		87	92													90(2)
Gold Plus	PGI Alfalfa	4	HR	HR	HR	HR	R	81															–
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	Producers Choice	4	HR	HR	HR	HR	HR										45						–
PGI 459	Producers Choice	4	HR	HR	HR	HR	HR									17		93					55(2)
Pioneer 98	Pioneer	3	HR	R	HR	R	–	56															–
ProGro	MBS Inc.	4	HR	HR	R	HR	MR	81															–
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												–
Spredor 3	Syngenta	1	HR	HR	R	MR	S	75					68										72(2)
Spredor 4	Syngenta	2	HR	HR	HR	HR	R								25								–
TS 4007	Producers Choice	4	HR	R	HR	HR	HR										82						–
TS 4010/A4535	Producers 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										–
Wintergreen	ABI Alfalfa	3	HR	HR	HR	HR	R	72															–
WL 326GZ	W-L Research	4	HR	HR	HR	HR	HR	88															–
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.
[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 4 years so final persistence report would be "2015 Alfalfa Grazing Tolerance Report" archived in the KY Forage website at <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 21. Summary of 2000-2018 Kentucky tall fescue grazing tolerance trials with three or more years of data (stand persistence shown as a percent of the stand rating of the endophyte infected variety KY 31+).

			Lexington																Princeton	
			2000[2,3]	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2002	Mean[4]
Variety	Endophyte Status[1]	Proprietor	4yr[5]	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	4yr	(#trials)
Advance MaxQ	novel	Pennington Seed							94											–
Baguala	free	Allied Seed																98		–
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		99(8)
Bronson	free	Ampac Seed										98	98							98(2)
Bull	free	Caudill Seed														96				–
Cajun II	free	Smith Seed Services											98				97	99		98(3)
Cattle Club	free	Green Seed	93	91																92(2)
Carmine	free	DLF-Jenks		90																–
Cowgirl	free	Rose Agri-Seed					99								99					99(2)
Dominate	free	Allied Seed																97		–
Drover	free	Barenbrug USA																99		–
Festival	free	Pickseed West		100	101														89	97(3)
FSG 402TF	free	Farm Service Genetics																99		–
Flourish	free	Allied Seed													98					–
Goliath	free	Ampac Seed											98							–
Hoedown	free	DLF-Jenks	88																	–
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	99	105	97(14)
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(17)
KY31-	free	KY Agri. Exp Sta.		98	103	98	100	83	101	100	98	99	99	100	100	99	100	99	105	99(16)
Kokanee	free	Ampac Seed	43																	–
Lacefield MaxQ II	novel	Pennington Seed						82	102	99	98	98	97			100	99	100		97(9)
Maximize	free	Rose Agri-Seed		99																–
Nanryo	free	Japanese Grassland For.Seed								100										–
Orygun	free	–			99															–
Resolute	free	Ampac Seed		23																–
Select	free	Southern States	107	101	100	100		67	100	93	95	97	100	100	99	99	99	100	98	97(16)
SS0705TFSL	free	Southern States															100	100		–
Stargrazer	free	Southern States	86	89																79(4)
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 2010 was grazed 4 years so the final report would be "2014 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <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 22. Summary of 2000-2018 Kentucky orchardgrass grazing tolerance trials with three or more years of data (stand persistence shown as a percent of the mean of the commercial varieties in the trial).

		Lexington														Princeton	
		2000[1,2]	2001	2002	2003	2004	2005[3]	2007	2009	2010	2011	2012	20133	2014	2015	2002	Mean[4]
Variety	Proprietor	4yr[5]	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	4yr	(#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												133	122(4)
Benchmark Plus	Southern States			120			152	135	106	106	108	115	146	154		133	122(8)
Boone	Public	102															–
Command	Seed Research of OR					81											–
Crown Royale	Donley Seed		100														–
Crown Royale Plus	Donley Seed			124												83	104(2)
Elise	Pure Seed											97					–
Hallmark	James VanLeeuwen		115		113											83	104(3)
Harvestar	Columbia Seeds							75		89	94		51	34			73(4)
Haymate	Southern States	53	115	100	118											83	94(5)
Intensiv	Barenbrug USA				51												–
Mammoth	DLF-Jenks		115														–
Megabite	Turf Seed		77														–
Niva	DLF-Jenks			76												83	80(2)
Persist	Smith Seed						138	107	103	100	96	115	102	123	109		108(7)
Potomac (certified)	Public			116		119									98	117	113(4)
Prairie	Turner Seed	127	121								94		131	90	100	83	103(6)
Prodigy	Caudill Seed												109	119			–
Profile	Scott Seed			116													–
Profit	Ampac Seed								95	99	102	94	95	90	84		94(6)
Tekapo	Ampac Seed		55	74	118		50	103	95	105	106	80	66	63	81	100	89(11)
Takena	Smith Seed		99														–
Seco	Southern States							85									–
SS0708OGDT	Southern States													128	128		128(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 2010 was grazed 4 years so the final report would be "2014 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <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 23. Summary of 2000-2018 Kentucky perennial ryegrass and festulolium (FL) grazing tolerance trials with three or more years of data 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 3yr	Mean[3] (#trials)
AGRLP103	–	AgResearch USA	128		86									107(2)
Albion	tetraploid	Grassland Oregon											113	–
Aries	diploid	Ampac Seed		139										–
Barfest (FL)	MF x PR[6]	Barenbrug USA						116	112					114(2)
Barvitra	diploid	Barenbrug USA											34	–
Boost	tetraploid	Allied Seed					101	83	95	104				96(4)
Calibra	tetraploid	DLF International								120		88	101	103(3)
Citadel	tetraploid	Donley Seed	107											–
Duo (FL)	MF x PR[6]	Ampac Seed	116				95	72	90	115			82	95(6)
Grand Daddy	tetraploid	Smith Seed Services		121		82		100	81	103		85	115	98(7)
Lasso	diploid	DLF-Jenks		130										–
Linn (certified)	diploid	Public	112	129	63		95	108	95	103	96	80	73	95(10)
Maverick	tetraploid	Ampac Seed		36										–
Meadow Green (FL)	MF xIR[6]	Pure Seed								15				–
PayDay	tetraploid	Mountain View Seeds									101	85		93(2)
Polly II	tetraploid	FS Growmark	36	68										52(2)
Power	tetraploid	Ampac Seed				158		107	112	109	89	79	103	108(7)
Quartet	tetraploid	Ampac Seed		77		59								68(2)
Remington	tetraploid	Barenbrug USA			151							138	142	140(2)
Remington PLUS NEA2[5]	tetraploid	Barenbrug USA										145	137	141(2)
Spring Green (FL)	MF x PR[6]	Rose Agri-Seed	101				109	115	115	120			100	110(6)
TetraGain	tetraploid	Pure Seed								112				–
Victorian	diploid	Caudill Seed									114			–

[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 4 years so the final report would be "2014 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <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 24. Summary of 1999-2018 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	1999[2,3]	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean[4]
			3-yr[5]	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	3-yr	(#trials)
BarOptima PLUS E34[6]	novel	Barenbrug USA								107			101	101	95	104	99	99	101(6)
Bronson	free	Ampac Seed	80																–
Cajun II	free	Smith Seed Services														96			–
Cattle Club	free	Green Seed	95																–
Cowgirl	free	Rose Agri-Seed									105				99				102(2)
Festorina	free	Advanta Seed	102																–
Jesup MaxQ	novel	Pennington Seed			98			78			104	97	100	101	97	105	98	100	98(9)
Johnstone	free	ProSeeds Marketing		88															–
KY31+	toxic	KY Agri. Exp.Sta.		105				102	109	120	107	101	101	101	99	105	99	100	104(11)
KY31-	free	KY Agri. Exp.Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(15)
Lacefield MaxQ II	novel	Pennington Seed							105	110		98				104		100	104(4)
Nanryo	free	Japanese Grassland Forage Seed								72									–
Seine	free	Seed Research of Oregon					135												–
Select	free	Southern States	82		109	94	99	73	104	76	108	98	100	101	98	98	97	99	96(14)
SS0705TFSL	free	Southern States															98	100	
Stargrazer	free	Southern States	70																–
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 2010 was grazed 4 years so the final report would be "2014 Cool-Season Grass Horse Grazing Tolerance Report" archived in the KY Forage website at <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 25. Summary of 1999-2018 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 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	110	108(7)
Potomac	Public				117										–
Prairie	Turner Seed			100										88	–
Prodigy	Caudill Seed											54			–
Profit	Ampac Seed							93	86		92		108		95(4)
SS-0708OGDT	Southern States									104			92	92	96(3)
Tekapo	Ampac Seed	101	115		93	30		92	100	83	87	63		110	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 4 years so the final report would be "2014 Cool-Season Grass Horse Grazing Tolerance Report" archived in the KY Forage website at <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

12-2018