



2016 Long-Term Summary of Kentucky Forage Variety Trials

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Introduction

Forage crops occupy approximately 7 million acres in Kentucky. Forages provide a majority of the nutrition for beef, dairy, horse, goat, sheep, and wildlife in the state. In addition, forage crops play 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 www.uky.edu/Ag/Forage 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

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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

Table 1. Summary of Kentucky Roundup Ready alfalfa yield trials 2011-2016 (yield shown as a percentage of the mean of the commercial varieties in the test).

Variety	Proprietor	FD	Variety Characteristics ¹					Lexington		Princeton		Quicksand	Mean ⁵ (# trials)
			Disease Resistance ²					12 ^{3,4}	15	11	13	14	
			Bw	Fw	An	PRR	APH	3yr ⁶	2yr	5yr	4yr	2yr	
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	93	88	93	99		93(4)
Alfagraze 600 RR	America's Alfalfa	6		R	HR	R	R		106			93	100(2)
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	98	104	97	100	93	99(5)
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	93	100		95	107	99(4)
Ameristand 445TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	102	99		100		100(3)
AphaTron RR	Croplan Genetics	4	HR	HR	HR	HR	HR	100			98		99(2)
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR	99		102			101(2)
DKA-41-18 RR	Monsanto	4	HR	HR	HR	HR	HR	98		101			100(2)
DKA 44-16 RR	Monsanto	4	HR	HR	HR	HR	HR	103			100		102(2)
Stratica RR	Croplan Genetics	4	HR	HR	HR	HR	HR	99			96		98(2)
Tonnica RR	Crop Genetics	5	HR	HR	HR	HR	HR	108			101		105(2)
WL 355 RR	W-L Research	4	HR	HR	HR	HR	HR	100		102			101(2)
WL 356HQ RR	W-L Research	5	HR	HR	HR	HR	HR	98	102		96		99(3)
WL 372HQ RR	W-L Research	5	HR	HR	HR	HR	HR	103			106		105(2)
428 RR	Allied Seed	4	HR	HR	HR	HR	HR		93		104	111	103(3)
54R02 RR	Dupont Pioneer	4	HR	HR	HR	HR	HR	98	116	104		97	104(4)
55VR06 RR	Dupont Pioneer	5	HR	R	HR	HR	HR		86			99	93(2)
55VR08 RR	Dupont Pioneer	5	-	HR	HR	HR	HR		107				-
6516R RR	NEXGROW	5	HR	-	HR	HR	HR	108			109		109(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 “2016 Alfalfa Report” archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

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

⁶ Number of years of data.

Table 2. Summary of Kentucky timothy yield trials 2000-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington											Quicksand		Princeton		Mean ³ (#trials)	
		00 ^{1,2} 2yr ⁴	01 3yr	02 4yr	06 3yr	07 3yr	08 3yr	09 3yr	11 3yr	12 3yr	13 3yr	14 2yr	99 2yr	01 2yr	00 3yr	04 2yr		
Alma	Newfield Seeds Co./Caudill Seed Co.														81			–
Auroro	General Feed and Grain	100												98				99(2)
Barfleo	Barenbrug USA							95	91	101			95					96(4)
Barpenta	Barenbrug USA					74			82	82								79(3)
Clair	Ky Agric. Exp. Station		109	115	107	95	108	104	112	99	100	97		108		122		106(12)
Classic	Cebeco International Seeds	100		88										87				92(3)
Climax	Canada Agr. Res. Station				79	102	105	98	102	100	84	108						97(8)
Colt	FS Growmark	105		101	90									112			99	101(5)
Common	Public		96															–
Comtral	Caudill Seed									92	95							94(2)
Derby	Southern States				112	111		106	112	108	115	112				124		113(8)
Dolina	DLF International	100		91														96(2)
Express	Seed Research of Oregon			97		91		97	95									95(4)
Hokuei	Snow Brand Seed	103																–
Hokusei	Snow Brand Seed	97												99				98(2)
Joliette	Newfield Seeds Co./Caudill Seed Co.						87	89									90	89(3)
Jonaton	Newfield Seeds Co./Caudill Seed Co.																84	–
Outlaw	Grassland West Company															107		–
Richmond	Pickseed Canada Inc.	100												103				102(2)
Summergraze	Brett Young										99							–
Summit	Allied Seed, L.L.C.			114														–
Talon	Seed Research of Oregon				110	112		108	106	109								109(5)
Tenho	Barenbrug USA												94					–
Treasure	Seed Research of Oregon				103	115		103	101	108								106(5)
Tundra	DLF International	95																–
Tuukka	Ampac Seed Company		95	90											92	93		93(4)
Varis	Mountain View Seeds												93					–
Zenyatta	DLF International										106							–

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 <www.uky.edu/Ag/Forage>.

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

⁴ Number of years of data.

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

Table 3. Summary of Kentucky bluegrass yield trials at Lexington 1996-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	96 ^{1,2}	03	04	06	07	08	09	10	11	12	13	14	Mean ³ (#trials)
		3yr ⁴	2yr	3yr	4yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	2yr	
Adam 1	Radix Research			98										–
Barderby	Barenbrug USA					94		101	91	98	87	103	105	97(7)
Big Blue	Rose-AgriSeed							82			95			89(2)
Common	Public				71	66	68							68(3)
Ginger	ProSeeds Marketing		89		118	119	114	118	112	107	110	107	95	109(10)
Kenblue	Public	90		102	133				96	95	118	95	96	103(8)
Lato	Turf Seed Inc.	110				122								116(2)
Park (certified)	Public										90	95	104	96(3)
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							–
Slezanka	DLF International Seeds		111											–

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 <www.uky.edu/Ag/Forage>. The 96 and 03 Lexington results are in the appropriate Tall Fescue Reports.

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

⁴ Number of years of data.

Table 4. Summary of Kentucky festulolium yield trials 2001-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).¹

Variety	Type ²	Proprietor	Lexington										Mean ⁵ (#trials)
			2001 ^{3,4}	2005	2008	2009	2010	2011	2012	2013	2014		
			2yr ⁶	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr		
Agula	MF x IR	Allied Seed					94			-			
Barfest	MF x PR	Barenbrug USA					105	101	107	119	91	105(5)	
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	98(8)	
Felina	(TF x IR) x TF	DLF International	104				132	118	134	114	96	116(6)	
Fojtan	(TF x IR) x TF	DLF International					112	101	124	92	72	100(5)	
Gain	MF x IR	Allied Seed					103	77	52	75		77(4)	
Hostyn	MF x IR	DLF International							107	110	106	108(3)	
Hykor	(TF x IR) x TF	DLF International					133	141	153	131	119	135(5)	
Lofa	(TF x Int) x Int	DLF International					105	107	110	128	112	112(5)	
Mahulena	(TF x IR) x TF	DLF International							131	109	107	116(3)	
Meadow Green	-	Pure Seed							37	34		36(2)	
Perseus	MF x IR	DLF International					132	114	126	123	110	121(5)	
Perun	MF x IR	DLF International					127	114	107	131	110	118(5)	
Rebab	(TF x IR) x TF	DLF International								94	77	86(2)	
Spring Green	MF x PR	Turf-Seed	96	111	114	101	113	112	114	110	103	108(9)	
Sweet Tart	MF x IR	ProSeeds Marketing			88		82	63	62			74(4)	
Vorage	-	Improved Forages										-	

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 <www.uky.edu/Ag/Forage>.

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

⁶ Number of years of data.

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 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

Table 5. Summary of Kentucky bromegrass yield trials at Lexington 2006-2016 (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 2-yr	Mean ³ (#trials)
AC Knowles	hybrid	Agriculture Canada	85		82	102	86	89(4)
Bigfoot	hybrid	Grassland Oregon	108	116	105			110(3)
Canterbury	mountain	Barenbrug USA		79				-
Carlton	smooth	Pickseed USA				82	100	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	114	119(4)
Olga	smooth	Barenbrug USA		116	101			109(2)
Peak	smooth	Allied Seed		97		100		99(2)
Persister	prairie	DLF International		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 <www.uky.edu/Ag/Forage>.

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

⁴ Number of years of data.

Table 6. Summary of Kentucky sudangrass yield trials 2008-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington									Mean ³ (#trials)
		2008 ^{1,2}	2009	2010	2011	2012	2013	2014	2015	2016	
All trials are 1 year yields											
AS9301 BMR ⁴	Alta Seeds/Ramer Seed					118					–
Enorma BMR	Cal/West Seeds			99	94	92	91	83	91	98	93(7)
FSG 1000 BMR	Farm Science Genetics								101	124	113(2)
Hayking BMR	Central Farm Supply	111	112	91	97	97	96	92	94	90	98(9)
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	94(9)
ProMax BMR	Ampac Seed	95	101	110	115	96	103	100	111	111	105(9)
SS130 BMR	Cal/West Seeds			101	103		107	106	110	109	106(6)
TrudanHeadless	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.

better stand persistence, and are typically more tolerant to heavy grazing.

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 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 of 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

Table 7. Summary of Kentucky sorghum-sudangrass yield trials 2008-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	Lexington									Mean ³ (#trials)
		2008 ^{1,2}	2009	2010	2011	2012	2013	2014	2015	2016	
All trials are 1 year yields											
AS6402 BMR ⁴	Alta Seeds/Ramer Seed					91					–
AS6503 BMR ⁶	Alta Seeds/Ramer Seed							96	103	90	96(3)
FSG 208 BMR	Farm Science Genetics			75							–
FSG 214 BMR ⁶	Farm Science Genetics							99	108	112	106(3)
FSG 215 BMR ⁶	Farm Science Genetics								112		–
Greengrazer V	Farm Science Genetics			166				122	107	92	118(5)
GW300 BMR	Gayland Ward Seed				88	78	88	81	73	101	85(6)
HyGain	Turner Seed	104	105	118						110	109(4)
MS 202 BMR	Farm Science Genetics			106							–
Nutra-King BMR ⁶	Gayland Ward Seed								110	108	109(2)
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	107(6)
SS220 BMR	Southern States		107	84		112					101(3)
Surpass BMR-6	Turner Seed	81	80	64						79	76(4)
Super Sugar	Gayland Ward Seed				102	117	107		125	85	107(5)
Super Sugar BMR	Gayland Ward Seed									107	–
Super Sugar (Delayed Maturity)	Gayland Ward Seed							101	82		–
Super Sugar Sterile	Gayland Ward Seed							94			92(2)
Sweet-For-Ever	Gayland Ward Seed				110	107	81				99(3)
Sweet-For-Ever BMR	Gayland Ward Seed					78	70		77	104	82(4)
SweetSix BMR	Gayland Ward Seed						93	101		91	95(3)
SweetSix BMR (Dry Stalk)	Gayland Ward Seed								102		–
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.

(*Bromus biebersteinii* Roem. & Schult) is a native of southeastern Europe and the adjacent Near East. It resembles smooth brome grass but has only short rhizomes or none at all. Meadow brome grass is densely tufted and has a similar growth habit to tall fescue. Hybrid brome grasses are a cross between smooth and meadow brome grasses. Alaska brome grass (*Bromus sitchensis*), also called Sitka brome grass, is a long-lived perennial bunch grass that will actively grow at moderate rates during the spring and summer season. It does not spread by rhizomes and is more suited to environments with harsh winters. Prairie brome grass (*Bromus willdenowii*) is a tall, cool-season, leafy short-lived, perennial, deep-rooted bunch grass. 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 brome grasses are susceptible to winterkill. Mountain brome grass (*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 brome grasses have several advantages over tall fescue, including retaining quality as they mature and better growth during dry weather, but they are generally less well adapted in Kentucky.

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

Table 8. Summary of Kentucky pearl millet yield trials 2013-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	2013 ^{1,2}	2014	2015	2016	Mean ³ (#trials)
		All trials are 1 year yields				
FSG 300 Hybrid	Farm Science Genetics			109	99	–
FSG 315 Dwarf BMR	Farm Science Genetics			101	102	–
Leafy22 Hybrid	Turner Seed				105	–
Pennleaf Hybrid	Pennington Seed	93	91	94	96	93(3)
PP102M Hybrid	Cisco	93	93	90	79	92(3)
SS501	Southern States	90	99	96	86	95(3)
SS635	Southern States	108	112	101	116	107(3)
Tifleaf III Hybrid	Gayland Ward Seed	116	106	108	116	110(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.

useful for hay; therefore, they are commonly used for baleage and grazing.

BMR (Brown Mid-rib) sudangrass and BMR sorghum-sudangrass varieties have been developed. See tables 12 and 13 for information.

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

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)

Table 9. 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 10. Summary of 1999-2016 Kentucky tall fescue horse grazing tolerance trials in Lexington (stand persistence shown as a percent of the stand rating of KY 31-).

Variety	Proprietor/KY Distributor	1999 ^{1,2} 3-yr ⁴	2001 4-yr	2002 4-yr	2003 4-yr	2004 4-yr	2005 4-yr	2006 4-yr	2007 4-yr	2008 4-yr	2009 4-yr	2010 4-yr	2011 4-yr	2012 4-yr	2013 3-yr	Mean ³ (#trials)
BarOptima PLUS E34 ⁵	Barenbrug								107			101	101	95	104	102(5)
Bronson	Ampac Seed	80														—
Cajun II	Smith Seed														96	—
Cattle Club	Green Seed	95														—
Cowgirl	Rose Agri-Seed									105				99		102(2)
Festorina	Advanta Seed	102														—
Jesup MaxQ ⁵	Pennington Seed			98			78			104	97	100	101	97	105	98(8)
Johnstone	ProSeeds		88													—
KY31+ ⁵	KY Agri. Exp.Sta.		105				102	109	120	107	101	101	101	99	105	105(10)
KY31- ⁵	KY Agri. Exp.Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(14)
Lacefield MaxQ II ⁵	Pennington Seed							105	110		98				104	104(4)
Nanryo	JapaneseGrasslandFor.Seed								72							—
Seine	Seed Research of OR					135										—
Select	Southern States	82		109	94	99	73	104	76	108	98	100	101	98	102	96(13)
Stargrazer	Southern States	70														—
Stockman	Seed Research of OR					125										—

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 <www.uky.edu/Ag/Forage>.

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

⁴ Number of years of data.

⁵ KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. Jesup MaxQ and Lacefield MaxQ II contain a non-toxic endophyte. BarOptima PLUS E34 contains a beneficial endophyte. The other fescue varieties in this table do not contain an endophyte.

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

Description of the Tests

Yield trials. Plots were seeded at the recommended seeding rate per acre and were planted into a prepared seedbed with a disk drill. Plots were 5 feet by 15 feet in a randomized complete block design with four replications. 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

Table 11. Summary of 1999-2016 Kentucky orchardgrass horse grazing tolerance trials 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 3-yr	Mean ⁴ (#trials)
Albert	Univ. of Wisconsin			95									—
Ambrosia	Amer.GrassSeedProd.						61						—
Benchmark	Southern States	104			85								95(2)
Benchmark Plus	Southern States				111	157	139	111	114	121	121	145	123(7)
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					114		103	101	92	112	116	105(5)
Potomac	Public				117								—
Prairie	Turner Seed			100									—
Prodigy	Caudill Seed											58	—
Profit	Ampac Seed							93	86		92		90(3)
SS-0708OGDT	Southern States									104			—
Tekapo	Ampac Seed	101	115		93	30		92	100	83	87	80	94(8)

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 <www.uky.edu/Ag/Forage>.

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.

Table 12. Summary of 2002-2016 Kentucky white clover grazing tolerance trials in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the test).

Variety	Type	Proprietor	2002 ^{1,2}	2004	2006 ³	2006	2008 ⁴	2008	2009	2010	2011	2012	2013	2014	Mean ⁵ (#trials)
			2yr ⁶	4yr	2yr	2yr	3yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	
Alice	Intermediate	Barenbrug USA		59	98									82	80(3)
Barblanca	Intermediate	Barenbrug USA		118	91	151									120(3)
Canterbury	Dutch	Allied Seed										63	105		84(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	76	107	101(10)
GWC-AS10	–	Ampac Seed								77					–
Insight	Ladino	Allied Seed				77									–
Ivory	Intermediate	DLF International	132	142											137(2)
Ivory II	Intermediate	DLF International					102								–
Kopu II	Intermediate	Ampac Seed			77	122	96		93	113	112	86	118	90	101(9)
KY Select	Intermediate	KY Agr Ex. Sta.						105		83					94(2)
Patriot	Intermediate	Pennington		110	137	122		100	111	110	123	102	126	120	116(10)
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	80	100	89(10)
Renovation	Intermediate	Smith Seed											97	113	105(2)
Resolute	Intermediate	Southern States			101	106					65				91(3)
Seminole	Ladino	Saddle Butte Ag. Inc.		75		97	91						88	82	87(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	152	102	117(10)

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 <www.uky.edu/Ag/Forage>.

³ This trial was replanted in the spring of 2006 due to poor establishment in the fall of 2005.

⁴ This trial was replanted in the spring of 2008 due to poor establishment in the fall of 2007.

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

⁶ Number of years of data.

Table 13. Summary of 2000-2016 Kentucky perennial ryegrass and festulolium (FL) grazing tolerance trials in Lexington (stand persistence shown as a percent of the mean of the commercial varieties in the trial).

Variety	Type	Proprietor	2000 ^{1,2}	2001	2003	2005	2007	2008	2010	2011	2012	2013	Mean ³ (#trials)
			4yr ⁴	3yr	4yr	3-yr	4yr	4yr	4yr	4yr	4yr	3yr	
AGRLP103	–	AgResearch USA	128		86								107(2)
Aries	diploid	Ampac Seed		139									–
Barfest (FL)	MF x PR ⁶	Barenbrug USA							111	104			108(2)
BG 34	diploid	Barenbrug USA				176 ⁵	145 ⁵		129	147	119		143(5)
Boost	tetraploid	Allied Seed						101	79	89	101		93(4)
Calibra	tetraploid	DLF International									116		–
Citadel	tetraploid	Donley Seed	107										–
Duo (FL)	MF x PR ⁶	Ampac Seed	116					95	68	84	112		95(5)
Grand Daddy	tetraploid	Smith Seed Services		121			70		95	76	100	99	94(6)
Lasso	diploid	DLF-Jenks		130									–
Linn (certified)	diploid	Public	112	129	63			95	103	89	100	101	99(8)
Maverick	tetraploid	Ampac Seed		36									–
MeadowGreen (FL)	–	Pure Seed									15		–
PayDay	tetraploid	MountainViewSeeds										98	–
Polly II	tetraploid	FS Growmark	36	68									52(2)
Power	tetraploid	Ampac Seed					134		102	104	106	95	108(5)
Quartet	tetraploid	Ampac Seed		77		63	50						60(3)
Remington	tetraploid	Barenbrug USA			151 ⁵								–
Spring Green (FL)	MF x PR ⁶	Rose Agri-Seed	101					109	109	108	116		109(5)
TetraGain	tetraploid	Pure Seed									109		–
Tonga	tetraploid	Ampac Seed				61							–
Victorian		Caudill Seed										107	–

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 <www.uky.edu/Ag/Forage>.

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

⁴ Number of years of data.

⁵ Grazing tolerance values for these entries may have been elevated due to the low survival of the other commercial varieties in the trials for these years.

⁶ MF = meadow fescue, PR = perennial ryegrass.

Table 14. Summary of 2000-2016 Kentucky orchardgrass grazing tolerance trials (stand persistence shown as a percent of the mean of the commercial varieties in the trial).

Variety	Proprietor	Lexington												Princeton	Mean ⁴ (#trials)
		2000 ^{1,2} 4yr ⁵	2001 4yr	2002 4yr	2003 4yr	2004 4yr	2005 ³ 4yr	2007 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	2013 ³ 3yr	2002 4yr	
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	158	133	118(7)	
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		46		86(3)	
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	86	104(6)	
Potomac	Public			116		119							117	117(3)	
Prairie	Turner Seed	127	121							94		106	83	106(4)	
Prodigy	Caudill Seed											86			-
Profile	Scott Seed			116											-
Profit	Ampac Seed							95	99	102	94	86			98(4)
Tekapo	Ampac Seed		55	74	118		50	103	95	105	106	80	53	100	93(9)
Takena	Smith Seed		99												-
Seco	Southern States						85								-

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 <www.uky.edu/Ag/Forage>.

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.

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, 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. To determine to which yearly report to refer, see the footnote in each table.

Summary

Selecting a good forage variety is an important first step in establishing a productive stand of forage. Proper man-

Table 18. Summary of Kentucky alfalfa yield trials 2000-2016 (yield shown as a percentage of the mean of the commercial varieties in the test). continued

Variety	Variety Characteristics ¹			Lexington																	Bowling Green ²			Eden Shale			
				Disease Resistance ³				00% ⁵							Princeton												
				FD	Bw	Fw	An	PRR	APH	R	R	R	5yr ⁷	5yr	5yr	5yr	5yr	5yr	5yr	6yr	4yr	11	13	03	06	03	Mean ⁶
Pfhirst	4	HR	HR	HR	HR	R	R	R	R													102			104(2)		
Phoenix	5	HR	HR	HR	HR	HR	HR	HR			113	99	102						94				96			101(7)	
Radiance HD	4	HR	HR	HR	HR	HR	HR	HR					97				105		103							103(3)	
Radiant-AM	4	HR	HR	HR	HR	HR	HR	HR																		-	
Rebound 5.0	4	HR	HR	HR	HR	HR	HR	HR										103					108			104(3)	
Rebound 6.0	4	HR	HR	HR	HR	HR	HR	HR																		103(2)	
Regal	5	HR	HR	HR	HR	MR	MR	MR											101							103(2)	
Reward II	4	HR	HR	HR	HR	HR	HR	HR														103				100(4)	
SaranacAR(certified)	4	MR	R	HR	LR	-	-	-			93	87	77	85	86	92	98	82	82	97	99	89	95			90(16)	
Summer Gold	4	HR	HR	HR	HR	HR	HR	HR			107															-	
Beck's Hybrids	4	HR	HR	HR	HR	HR	HR	HR																		103(2)	
ABI Alfalfa	5	HR	HR	HR	HR	HR	HR	HR								108						105				-	
TripleTrust 450	5	HR	HR	HR	HR	HR	HR	HR																		-	
TripleTrust 500	6	HR	HR	HR	HR	HR	HR	HR																		-	
USG 681HY	2	R	MR	-	-	-	-	-			93									113						94(2)	
Vernal	4	HR	HR	HR	HR	HR	HR	HR																		98(6)	
Withstand	4	HR	HR	HR	HR	HR	HR	HR				100	90										114			-	
WL 319HQ	3	HR	HR	HR	HR	HR	HR	HR			108															-	
WL 327	4	HR	HR	HR	HR	HR	HR	HR			105															-	
WL 338SR	4	HR	HR	HR	HR	HR	HR	HR			101															-	
WL 343HQ	4	HR	HR	HR	HR	HR	HR	HR				101	110							100						104(3)	
WL 348AP	4	HR	HR	HR	HR	HR	HR	HR															99			-	
WL 354HQ	4	HR	HR	HR	HR	HR	HR	HR																		-	
WL 357HQ	5	HR	HR	HR	HR	HR	HR	HR			123											106				109(4)	
WL 363HQ	5	HR	HR	HR	HR	HR	HR	HR															105			104(3)	
4m76	4.7	HR	HR	HR	HR	R	R	R			116															-	
4030	4	HR	HR	HR	HR	HR	HR	HR																		-	
5-star	5	R	HR	R	R	R	R	R														101				-	
53H92	3	HR	HR	HR	HR	HR	HR	HR											97							98(2)	
54Q32	4	HR	HR	HR	HR	HR	HR	HR											99							-	
54V46	4	R	HR	HR	HR	HR	HR	HR																		-	
55V48	5	HR	HR	HR	HR	HR	HR	HR																		99	
55V50	5	HR	R	HR	HR	HR	HR	HR																		-	
54V54	4	HR	HR	HR	HR	HR	HR	HR														105				109(2)	
54V56	4	HR	HR	HR	HR	HR	HR	HR			98	94														99(3)	
6400HT	4	HR	HR	HR	HR	HR	HR	HR					108													-	
6415	4	HR	HR	HR	HR	HR	HR	HR														103				102(2)	
6417	4	HR	HR	HR	HR	HR	HR	HR															105			104(2)	
6420	4	HR	R	HR	R	HR	R	HR			106															-	
6422Q	4	HR	HR	HR	HR	HR	HR	HR																	102	-	
6530	5	HR	HR	HR	HR	HR	HR	HR																		106(2)	
6552	5	HR	HR	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 <www.uky.edu/Ag/Forage>.
6 Mean only presented when respective variety was included in two or more trials.
7 Number of years of data.

Table 20. Summary of Kentucky alfalfa grazing trials 1998-2016 (stand persistence shown as a percent of the grazing tolerant Alfagraze).

Variety	Proprietor	Variety Characteristics ¹												Lexington												Mean's (#trials)
		Disease Resistance ²						Fall Dormancy						Stand Persistence						2013						
		FD	Bw	Fw	An	PRR	APH	1998 ^{3,4}	2000	2000	2001	2004	2005	2006	2008	2009	2010	2011	2012		2013					
ABT 350	W-L Research	3	HR	HR	HR	HR	HR	46	100	100	100	100	100	100	100	100	100	100	100	100	73(2)					
ABT 405	W-L Research	4	HR	HR	HR	HR	HR	46	100	100	100	100	100	100	100	100	100	100	100	100	100(13)					
Alfagraze	America's Alfalfa	2	MR	R	MR	R	-	100	100	100	100	100	100	100	100	100	110				-					
Alfagraze300 RR	America's Alfalfa	3	HR	R	HR	HR	HR														-					
Amerigrize 401 +Z	America's Alfalfa	4	HR	HR	HR	HR	R	56	26	85	125		141	144	50	91		144	112	114(6)						
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR														112(2)					
Ameristand 403TPlus	America's Alfalfa	4	HR	HR	HR	HR	HR														89(3)					
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR														39(12)					
Apollo	America's Alfalfa	4	R	R	R	R	-	47	17	31	25		36	27	25	17	27	70	55	86	58(2)					
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR														-					
Baralfa 54	Barenbrug USA	-	R	HR	HR	HR	HR	78													-					
Bulldog-505	Univ. of GA	5	-	HR	-	R	-											144	111	128(2)	-					
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									-					
Legen Dairy5.0	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	MR	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														-					
TS 4010/A4535	Producers Choice	4	HR	R	HR	HR	HR									82					-					
Triple Trust 450	ABI/America's Alfalfa	5	HR	HR	HR	HR	HR						145								116(3)					
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=falldormancy, 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 of final persistence; the report would be "2015 Alfalfa Grazing Tolerance Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.
⁵ Mean only presented when respective variety was included in two or more trials.
⁶ Number of years of data.

Table 21. Summary of Kentucky annual ryegrass yield trials 2000-2016 (yield shown as a percentage of the yield value of Marshall).

Variety	Type	Proprietor	Lexington ¹												Princeton			Bowling Green	Mean ⁴ (#trials)										
			03 ^{2,3}	04	05	06	07	08	09	10	10	11	12	12	13	14	15			00	02	03							
Abundant	tetraploid	Ampac Seed				12																							
Acrobat	-	Proseeds Marketing						144																					
AE110	Westerwold tetraploid	Pickseed USA, Inc.								89	100																		95(2)
Amp	Westerwold tetraploid	Columbia Seeds																											
Andy	Westerwold tetraploid	DLF International																											
Assist	Westerwold diploid	SaddleButte																											
Attain	Westerwold tetraploid	Smith Seed Services																											
Avance	Westerwold diploid	DLF International								111																			90(2)
Barextra	Italian tetraploid	Barenbrug USA																											
Barmultra II	Italian tetraploid	Barenbrug USA								133																			
Big Bang	-	Brett Young																											
Big Boss	Westerwold tetraploid	Smith Seed Services								98																			
Big Daddy	Westerwold tetraploid	FFR/Sou. St.								86	98																		
Bill	Westerwold diploid	Smith Seed Services																											
Brangus	Italian tetraploid	KB Seed Solutions								94																			
Bruiser	Westerwold diploid	Ampac Seed								65	105	100																	
Common	-	Public																											
Centurion	Westerwold diploid	Mountain View Seeds																											
DH-3	Italian tetraploid	Allied Seed																											
Diamond T	Italian tetraploid	Oregro Seeds								91	27																		
Dixie Gold	Westerwold tetraploid	Caudill Seed								8																			
Domino	Italian tetraploid	DLF International																											
Dyna-Gain	Westerwold diploid	Columbia Seeds																											
Ed	Westerwold diploid	Smith Seed Services																											
Fantastic	Westerwold diploid	Ampac Seed								48	84																		
Feast II	Italian tetraploid	Ampac Seed																											
Flying A	Westerwold diploid	Oregro Seeds								35	113	109																	
Fox	Italian diploid	DLF International																											
Fria	Westerwold diploid	Allied Seed																											
GR-AS10	Italian	Ampac Seed																											
Graze-N-Gro	Westerwold diploid	Seed Research of OR																											
Green Farm	Westerwold diploid	Smith Seed Services																											
Gulf	Westerwold diploid	Public								67	26	87	78																
Hercules	Westerwold tetraploid	Barenbrug USA																											

continued

Table 22. Summary of Kentucky perennial ryegrass yield trials 1999-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial). continued

Variety	Type	Proprietor	Lexington																			Princeton			Bowling Green			Mean ^{3,4} (#trials)												
			991.2		01		03		04		05		06		07		08		09		10		11		12		13		14		00		02		03					
			2yr ⁵	87	98	98	98	102	98	85	84	101	92	92	93	80	95	83	87	88	77	85	85	85	85	85	85		85	85	85	85	85	85	85	85	85			
Linn (certified)	diploid	Public																																						
Manhattan	diploid	-																																						
Mara	diploid	Barenbrug USA																																						
Matrix	diploid	Cropmark seeds																																						
Maverick Gold	hybrid tetraploid	Ampac Seed																																						
Orantas	diploid	DLF International																																						
Ortaz	tetraploid	Oregro Seeds																																						
PayDay	tetraploid	MountainView Seeds																																						
Polly II	tetraploid	FS Growmark																																						
Polly Plus	hybrid tetraploid	Allied Seed																																						
Power	tetraploid	Ampac Seed																																						
Pollin	tetraploid	DLF International																																						
Quartermaster	tetraploid	Radix Research																																						
Quartet	tetraploid	Ampac Seed																																						
RAD-CPS212	hybrid tetraploid	Radix Research																																						
RAD-M1125	hybrid tetraploid	MountainView Seeds																																						
Remington	tetraploid	Barenbrug USA																																						
RemingtonPLUSNEA2	tetraploid	Barenbrug USA																																						
Sampson	diploid	International Seeds																																						
Sierra	diploid	Lewis Seed Co.																																						
TetraGain	tetraploid	Pure Seed																																						
TetraMag	tetraploid	MountainView Seeds																																						
Tonga	tetraploid	Kings AgriSeeds																																						
Verseka	tetraploid	Allied Seed																																						
Victorian	diploid	Caudill Seed																																						
Yatsyn	diploid	Barenbrug USA																																						

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 <www.uky.edu/Ag/Forage>.
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 19. Summary of 2000-2016 Kentucky tall fescue grazing tolerance trials (stand persistence shown as a percent of the stand rating of KY 31+).

Variety	Proprietor	Lexington										Princeton						
		2000 ^{1,2} 4yr ⁴	2001 4yr	2002 4yr	2003 4yr	2004 4yr	2005 4yr	2006 4yr	2007 4yr	2008 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	2013 3yr	2002 4yr	Mean ³ (#trials)	
Advance MaxQ ⁵	Pennington Seed							94										
Bariane	Barenbrug USA				89			47	29								60(4)	
BarElite	Barenbrug USA							96										
Barolex	Barenbrug USA							78	101	86							88(3)	
BarOptima PLUS E34 ⁵	Barenbrug USA							100	97					98	100	99	99(6)	
Bronson	Ampac Seed													98			98(2)	
Bull	Caudill Seed														96			
Cajun II	Smith Seed Services													98		79		
Cattle Club	Green Seed	93	91														92(2)	
Carmine	DLF-Jenks		90															
Cowgirl	Rose Agri-Seed					99									99		99(2)	
Festival	Pickseed West		100	101												89	97(3)	
Flourish	Allied Seed														98			
Goliath	Ampac Seed													98				
Hoedown	DLF-Jenks																	
HyMark	Fraser Seeds																	
Jesup EF	Pennington Seed						99								100		98(2)	
Jesup MaxQ ⁵	Pennington Seed														100		100(4)	
Johnstone	Proseeds		92							68	102	97				99	97(12)	
KY31+ ⁵	KY Agri. Exp Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(15)	
KY31- ⁵	KY Agri. Exp Sta.	98	103	98	100	100	83	101	100	99	100	99	100	99	100	105	100(14)	
Kokanee	Ampac Seed	43																
Lacefield MaxQ II ⁵	Pennington Seed																	
Maximize	Rose Agri-Seed		99														96(7)	
Namryo	Japanese Grassland For.Seed								100									
Orygun	—																	
Resolute	Ampac Seed				99													
Select	Southern States	107	101	100	100					67	100	93	95	97	103	100	99	97(14)
Stargrazer	Southern States																79(4)	
Stockman	Seed Res. of OR																	
Texoma MaxQ II ⁵	Pennington Seed																	
Tuscany II	Seed Res. of OR																	
Verdant	Am.Grass Seed																	

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 <www.uky.edu/Ag/Forage>.
3 Mean only presented when respective variety was included in two or more trials.
4 Number of years of data.
5 KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. Jesup MaxQ, Texoma MaxQ II, Advance MaxQ and Lacefield MaxQ II contain non-toxic endophyte. BarOptima PLUS E34 contains a beneficial endophyte. The other fescue varieties in this table do not contain an endophyte.

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