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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 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

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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 Characteristics[1]						Lexington		Princeton		Quicksand	
			Disease Resistance[2]					12[3,4]	15	11	13	14	Mean[5]
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	3yr[6]	2yr	5yr	4yr	2yr	(# trials)
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).

		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 2yr	99 2yr	01 2yr	00 3yr	04 2yr	Mean[3] (#trials)
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] 3yr[4]	03 2yr	04 3yr	06 4yr	07 3yr	08 3yr	09 3yr	10 3yr	11 3yr	12 3yr	13 3yr	14 2yr	Mean[3] (#trials)
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]

			Lexington									
			2001[3,4]	2005	2008	2009	2010	2011	2012	2013	2014	Mean[5]
Variety	Type[2]	Proprietor	2yr[6]	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	(#trials)
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 xIR	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	(TFxIR) xTF	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.)

			2006[1,2]	2008	2010	2012	2014	Mean[3]
Variety	Type	Proprietor/KY Distributor	4-yr[4]	3-yr	3-yr	3-yr	2-yr	(#trials)
AC Knowles	hybrid	AgricultureCanada	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	AgricultureCanada	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)
Trudan Headless	Chromatin							118			–

[1] Establisment 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 BMR6	Alta Seeds/Ramer Seed						96	103	90		96(3)
FSG 208 BMR	Farm Science Genetics			75							–
FSG 214 BMR6	Farm Science Genetics						99	108	112		106(3)
FSG 215 BMR6	Farm Science Genetics								112		–
Greengrazer V	Farm Science Genetics			166			122	107	92	103	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 BMR6	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] Establisment 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 bromegrass but has only short rhizomes or none at all. Meadow bromegrass is densely tufted and has a similar growth habit to tall fescue. Hybrid bromegrasses are a cross between smooth and meadow bromegrasses. Alaska bromegrass (*Bromus sitchensis*), also called Sitka bromegrass, is a long-lived perennial bunchgrass that will actively grow at moderate rates during the spring and summer season. It does not spread by rhizomes and is more suited to environments with harsh winters. Prairie bromegrass (*Bromus wildenowii*) is a tall, cool-season, leafy short-lived, perennial, deep-rooted bunchgrass. It was introduced from South America. Seedheads are produced throughout the growing season, 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 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.

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.

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] Establisment 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.

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] Establisment 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	Japanese Grassland For. 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.Grass Seed Prod.						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] 2yr[6]	2004 4yr	2006[3] 2yr	2006 2yr	2008[4] 3yr	2008 4yr	2009 4yr	2010 4yr	2011 4yr	2012 4yr	2013 3yr	2014 2yr	Mean[5] (#trials)
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] 4yr[4]	2001 3yr	2003 4yr	2005 3-yr	2007 4yr	2008 4yr	2010 4yr	2011 4yr	2012 4yr	2013 3yr	Mean[3] (#trials)
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									–
Meadow Green (FL)	–	Pure Seed									15		–
PayDay	tetraploid	Mountain View Seeds										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).

		Lexington												Princeton	
		2000[1,2]	2001	2002	2003	2004	2005[3]	2007	2009	2010	2011	2012	2013[3]	2002	Mean[4]
Variety	Proprietor	4yr[5]	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	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-

agement, 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 2016 reports on the forage website. See below for specific reports. The forage Web site contains all reports from 2001 through 2016.

Yield and Grazing Tolerance Reports

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

- 2016 Alfalfa Report (PR-709)
- 2016 Red and White Clover Report (PR-710)
- 2016 Orchardgrass Report (PR-711)
- 2016 Tall Fescue and Bromegrass Report (PR-712)
- 2016 Timothy and Kentucky Bluegrass Report (PR-713)
- 2016 Annual and Perennial Ryegrass and Festulolium Report (PR-714)
- 2016 Alfalfa Grazing Tolerance Report (PR-715)
- 2016 Red and White Clover Grazing Tolerance Report (PR-716)
- 2016 Cool-Season Grass Grazing Tolerance Report (PR-717)
- 2016 Cool-Season Grass Horse Grazing Report (PR-718)
- 2016 Annual Grass Report: Warm Season and Cool Season (Cereals) (PR-719)
- 2016 Long-Term Summary of Kentucky Forage Variety Trials (PR-720)

Table 15. Summary of Kentucky white clover yield trials 2002-2016 (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	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	3-yr	2yr	2yr	(#trials)
Advantage	Ladino	Allied Seed, L.L.C.		125															106	116(2)
Alice	Intermediate	Barenbrug USA												105	120		86			104(3)
Avoca	Dutch	DLF International Seeds				59											82			71(2)
Barblanca	Intermediate	Barenbrug USA		92																–
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	87	83	101	95	90(15)
GWC-AS10	Ladino	Ampac Seed									102									–
Insight	Ladino	Allied Seed, L.L.C.				128														–
Ivory	Intermediate	Cebeco	96																	–
Ivory II	Intermediate	DLF International Seeds					86			101	127									105(3)
Jumbo	Ladino	Ampac Seed	93																	–
Jumbo II	Ladino	Ampac Seed									121	101			99					107(3)
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	104	100	98	99	99(15)
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					117(5)
Resolute	Intermediate	Southern States				63														–
Renovation	Intermediate	Smith Seed Services												83	85					84(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		136			132(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 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 <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,\.

About the Authors

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Table 16. Summary of Kentucky red clover yield trials 2000-2016 (yield shown as a percentage of the mean of the named commercial varieties in the trial).

		Lexington															Princeton							Quicksand					Eden Shale				Mean[3]
		00[1,2]	00	01	02	03	04	06	08	09	10	11	12	13	14	15	00	03	05	08	09	11	13	01	03	05	08	10	00	03	08	10	
Variety	Proprietor	3yr[4]	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	2yr	3yr	3yr	2yr	3yr	2yr	2yr	3yr	2yr	2yr	3yr	3yr	3yr	3yr	2yr	3yr	3yr	(#trials)
AA117ER	ABI Alfalfa							110											87							92							96(3)
Acclaim	Allied Seed				92																												–
Arlington	WI Agr. Exp.Sta.				72																												–
Belle	Agribiotech	88			82																												85(2)
Cherokee	FL Agr. Exp. Sta.	78			65																												72(2)
Cinnamon	Southern States	111			108																												110(2)
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	80							67					72				77	81(9)
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															99																	–
Freedom!	Barenbrug USA	108	105	127	123	96	118	91	100	108	106	109	99	101	97	108	105	110	136	107	116	95	107	111	103	119	106	115	102	102	100	140	109(31)
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		107							107										105(3)
Impact	Specialty Seeds	106	97														98																100(3)
Juliet	Caudill Seed									84										93	90										84	59	82(5)
Kenland (cert.)	KY Ag.Exp Sta.	110	111	127	139	118	117	117	99	111	99	116	114	109	103	102	104	102	92	113	106	106	115	111	88	105	104	123	104	98	110	138	107(31)
Kenland (uncert)	Public										82									74				83				67			66	92	77(6)
Kenstar	KY Ag.Exp Sta.		105														104																105(2)
Kenton	KY Ag.Exp Sta.	100	93	119	109	90	95	112	121								98	95	105	112	94			93	99	106	98		102	98			102(19)
Kenway	KY Ag.Exp Sta.	106	104	111	134		97	119	118								100		94	106	103			100		103	94		102				106(15)
LS 9703	Lewis Seed												107										86										97(2)
Morning Star	Cal/West Seeds																			90											90		90(2)
Plus	Allied Seed	113			113																								97				108(3)
Plus II	Allied Seed								130																		97						114(2)
Prima	Public	92			74																												83(2)
Quinequeli	Caudill Seed									92											80											57	76(3)
Red Gold	Proseeds Marketing							81												89											102		91(3)
Red Gold Plus	Turner Seed		97	97			95										95							98					98				97(6)
RedlanGraze	ABI Alfalfa	95																															–
RedlanGraze II	Americas Alfalfa			91	104																			93									96(3)
Redland Max	ABI Alfalfa						95																										–
Redstart	Syngenta	102			78																												90(2)
Robust	Scott Seed	92																															–
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	108	92		91																								96				97(4)
Rustler	Oregro Seeds								83		101	84															94	99				104	94(6)
Scarlet	Dairyland	95																															–
Sienna	Great Plains			91																				106									99(2)
Solid	Production Service	97	102		98	84		79									98	87	86							76			105	84			91(11)
SS-0303RCG	Southern States														103	104							103										103(3)
Starfire	Ampac Seed	97	93		99												98												95				96(5)
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 <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 17. Summary of Kentucky tall fescue yield trials 2000-2016 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington									Princeton							Quicksand				
		01[1,2]	03	05	07	09	11	12	13	14	00	02	04	06	08	10	12	01	03	05	13	Mean[3]
Variety	Proprietor	3-yr[4]	2-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	2-yr	2-yr	3-yr	3-yr	3-yr	3-yr	3-yr	3-yr	2-yr	2-yr	4-yr	3-yr	(#trials)
Atlas Select	ProSeeds Marketing														95							–
Aprilia	ProSeeds Marketing														93							–
BarElite	Barenbrug USA				96		100									92						95(3)
Bariane	Barenbrug USA		87	99																95		94(3)
Barolex	Barenbrug USA			90																		–
BarOptima PLUS E34[5]	Barenbrug USA			122	99		107	108	102	92						99	100				93	102(9)
Bronson	Ampac Seed			88	97	105	102	99	99							101	91			102		98(9)
Brutus	Saddle Butte Ag. Inc.									91												
Bull	Improved Forages		98	102				100			102	104					99		97		95	100(8)
Cajun II	Smith Seed Services						97		105	96						101					90	98(5)
Carmine	DLF International	99																97				98(2)
Cowgirl	Rose-AgriSeeds							94							102	100	98					99(4)
Drover	Barenbrug USA									109												
DuraMax GOLD[5]	DLF International						102							106								104(2)
Enhance	Allied Seed						93						107									100(2)
Estancia ArkShield[5]	Mountain View Seeds		102					106				101					102					103(4)
Festival	Pickseed West	107											102					107				105(3)
Flourish	Allied Seed							92									101					97(2)
Goliath	Ampac Seed					100			104							99						101(3)
Hoedown	DLF International	104																106				105(2)
HyMark	Fraser Seeds						91								102							97(2)
Jesup EF	Pennington Seed						98	105								103	100					102(4)
Jesup MaxQ[5]	Pennington Seed			98	101	110	103	100	93	104		94			95	100	98		100	102	100	100(14)
Johnstone	ProSeeds Marketing	108																				–
KENHY	KY Agric Exp Sta.												89									–
Kentucky 32	Oregro Seeds						93	94		98					98	94	101					96(6)
Kokanee	Ampac Seed	89									86											88(2)
KY31+[5]	KY Agric Exp Sta.	118	112	108	102	102	93	95	103	97	108	104		104	93	112	101	124	98	110	110	105(19)
Lacefield MaxQ II[5]	Pennington Seed				109				97	104				101	106						113	105(6)
Maximize	Turf-Seed	95																93				97(4)
Martin2 Protek[5]	DLF International						104															–
Nanryo	Jap.GrasslandForageSeed				96																	–
Noria	ProSeeds Marketing				98																	–
RAD-ERF50	Radix Research, Inc.														113							–
Resolute	Ampac Seed	90																65				78(2)
Savory	DLF International													91								–
Seine	Advanta Seeds												96									–
Select	Southern States	106	94	99	99	98	90	100	97	106	105	97	105	102	105	99	100	112	102	91	99	100(20)
SS-0705TFSL	Southern States									101												
Stockman	Seed Research of OR		108										101	97					105			103(4)
Teton II	Mountain View Seeds						107	105		102							99					103(4)
Texoma MaxQ II[5]	Pennington Seed			95																		–
TF0203G	Seed Research of OR				87																	–
Tower Protek[5]	DLF International						98															–
Tuscany	Forage Genetics	112																				–
Tuscany II	Seed Research of OR							97						98			106					100(3)
5CAN	Brett Young					86																–

[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 2 years, so the final report would be "2015 Tall Fescue 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+ contains the toxic endophyte. Jesup MaxQ, Texoma MaxQ II, Lacefield MaxQ II, DuraMax GOLD, Martin2 Protek, Tower Protek and Estancia Arkshield contain a non-toxic endophyte. BarOptima PLUS E34 contains a beneficial endophyte. The other fescue varieties in this table do not contain an endophyte.

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).

		Variety Characteristics[1]						Lexington							Princeton						Bowling Green[2]		Eden Shale	Mean[6]
			Disease Resistance[3]					00[4,5]	02	04	06	08	11	12	01	05	08	09	11	13	03	06	03	
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	5yr[7]	5yr	5yr	7yr	6yr	5yr	4yr	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	3	HR	HR	HR	HR	HR				99	91	101	94	97		100	101	107	99				99(9)
Ameristand403TPlus	America's Alfalfa	4	HR	HR	HR	HR	HR											94						–
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR											103	104					104(2)
Anchormate	ProSeed Marketing	–	–	–	–	–	–					100												–
Arc (certified)	Public	4	LR	MR	HR	–	–	91	96	76			92	92	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			95	78	87		91		81	95	87(11)
Bulldog-505	Univ. of GA	5	–	HR	–	R	–							101				96		103				100(3)
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR							99					99					99(2)
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR												106					–
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							105	101	103	102(4)
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)
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 424	Farm Sci. Genetics	4	HR	HR	HR	HR	HR													109				–
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-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	Legacy Seeds	4	HR	HR	HR	HR	HR						102											–
L447HD	Legacy Seeds	4	HR	HR	HR	HR	HR				105													–
L449Aph2	Legacy Seeds	4	HR	HR	HR	HR	HR												97					–
L455HD	Legacy Seeds	4	HR	HR	HR	HR	HR													102				–
Lancer	Allied Seeds	4	HR	HR	HR	HR	HR												101					–
LegenDairy 5.0	Croplan Genetics	3	HR	HR	HR	HR	HR				99					103						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	DairylandResearch	4	HR	HR	HR	HR	HR				106													–
PGI 459	Producers Choice	4	HR	HR	HR	HR	R					102												–

continued

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 Characteristics[1]						Lexington							Princeton						Bowling Green[2]		Eden Shale	Mean[6]
			Disease Resistance[3]					00[4,5]	02	04	06	08	11	12	01	05	08	09	11	13	03	06	03	
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	5yr[7]	5yr	5yr	7yr	6yr	5yr	4yr	4yr	5yr	5yr	6yr	4yr	3yr	3yr	4yr	4yr	(# trials)
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							102				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)
Regal	Great Plains	5	HR	HR	R	HR	MR														103		94	99(2)
Reward II	PGI Alfalfa	4	HR	HR	R	HR	R								99	103					94		103	100(4)
Saranac AR (certified)	Public	4	MR	R	HR	LR	–	93	87	77	85	86	92	98	92	95	88	92	82	97	99	89	95	90(16)
Summer Gold	Beck's Hybrids	4	HR	HR	HR	HR	HR			107														–
TripleTrust 450	ABI Alfalfa	5	HR	HR	HR	HR	HR									100						105		103(2)
TripleTrust 500	CentralFarmSupply	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	102					105						104(3)
4m76	FFR/Sou. St.	4.7	HR	HR	R	HR	R		116															–
4030	Brett Young Seeds	4	HR	HR	HR	HR	HR							101										–
5-star	Croplan Gen.	5	R	HR	R	R	R														97		99	98(2)
53H92	Pioneer	3	HR	HR	HR	HR	HR						97											–
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							112						105				109(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)
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						111					102						106(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 <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 19. Summary of Kentucky orchardgrass yield trials 2002-2016 (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	2002	2004	2006	2008	2010	2012	2003	2005	2010	2013	Mean[3]
Variety	Proprietor	3-yr[4]	4-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	3-yr	4-yr	3-yr	3-yr	(#trials)
Abertop	Pennington									71										–
Ambassador	DLF International Seeds										95									–
Ambrosia	AmericanGrassSeedProd.											90								–
Benchmark	Southern States									113										–
Benchmark Plus	Southern States		100	108	105	106	97	109	103	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)
Elise	Rose-AgriSeed						86						98		98					94(3)
Endurance	DLF International Seeds											104								–
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)
Intensiv	Barenbrug	102																		–
Lazuly	Proseeds Marketing												97							–
LG-31	DLF International Seeds										92									–
Megabite	Turf-Seed												106							–
Niva	DLF International Seeds									81										–
Paiute	DLF International Seeds			108																–
Persist	Smith Seed	123	105	106	107	112	106	100	105		101			105	102	108	101	102	103	106(15)
Potomac	Public				103	96	97	103	118	98			108	101	98			94	111	102(11)
Prairie	Turner Seed		107	101	109	106	113	123	105	104		100	104	99	104	105	107	120	102	107(16)
Prodigy	Caudill Seed				101		99	97					103		101				95	99(6)
Profit	Ampac Seed			107	96	98	103	96	98				103	102	102			115	96	101(11)
RAD-LCF 25	Radix Research													99				102		101(2)
Shawnee	Rose-AgriSeed												86							–
Shiloh II	Proseeds Marketing										117									–
SS0708OGDT	Southern States								90											–
Takena	Smith Seed									100										–
Tekena II	Smith Seed	110	102								109					106	104			106(5)
Tekapo	Ampac Seed		91	81	82	78	82	76	81			98	86	92	82	105	91	81	89	87(15)
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 <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 20. Summary of Kentucky alfalfa grazing trials 1998-2016 (stand persistence shown as a percent of the grazing tolerant Alfagraze).

		Variety Characteristics[1]						Lexington												
			Disease Resistance[2]					1998[3,4]	2000	2000	2001	2004	2005	2006	2008	2009	2010	2011	2012	2013	Mean[5]
Variety	Proprietor	FD	Bw	Fw	An	PRR	APH	3yr[6]	2yr	3yr	3yr	4yr	4yr	3yr	4yr	4yr	4yr	4yr	4yr	3yr	(#trials)
ABT 350	W-L Research	3	HR	HR	HR	HR	HR			46											–
ABT 405	W-L Research	4	HR	HR	HR	HR	R			46	100										73(2)
Alfagraze	America's Alfalfa	2	MR	R	MR	R	–	100	100	100	100	100	100	100	100	100	100	100	100	100	100(13)
Alfagraze300 RR	America's Alfalfa	3	HR	R	HR	HR	HR											110			–
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	112	114(6)
Ameristand 403TPlus	America's Alfalfa	4	HR	HR	HR	HR	HR									133		90			112(2)
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	39(12)
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	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								–
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 <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).

			Lexington[1]														Princeton		Bowling Green		Mean[4]
Variety	Type	Proprietor	03[2,3]	04	05	06	07	08	09	10	10	11	12	12	13	14	15	00	02	00	03	(#trials)
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 International																97				–
Assist	Westerwold diploid	SaddleButte													88							–
Attain	Westerwold tetraploid	Smith Seed Services								111					52	69						90(2)
Avance	Westerwold diploid	DLF International																107				–
Barextra	Italian tetraploid	Barenbrug USA																	121			–
Barmultra II	Italian tetraploid	Barenbrug USA								133				103	95		125					120(3)
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	91		89(6)
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					94(7)
Common	–	Public																83	87	84	82	84(4)
Centurion	Westerwold diploid	Mountain View Seeds											97			132						115(2)
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 International																	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		85		86(3)
Feast II	Italian tetraploid	Ampac Seed						35	113	109		81	93	71	47	56	88		127			97(7)
Flying A	Westerwold diploid	Oregro Seeds				39		59														–
Fox	Italian diploid	DLF International								109												–
Fria	Westerwold diploid	Allied Seed								95		87	89		104	81	85					87(5)
GR-AS10	Italian	Ampac Seed								113												–
Graze-N-Gro	Westerwold diploid	Seed Research of OR	114				67														100	94(3)
Green Farm	Westerwold diploid	Smith Seed Services														85						–
Gulf	Westerwold diploid	Public					67	26	87	78		76	72		27	69	60	79	79	76		75(11)
Hercules	Westerwold tetraploid	Barenbrug USA												91	68			108				100(2)

continued

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

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	00	03	
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		90		90	90(14)
Jumbo	Westerwold tetraploid	Barenbrug USA	112																		97	105(2)
KB Royal	Italian diploid	KB SeedSolutions								83												–
Kospeed	Westerwold diploid	Smith Seed Services														80	92					86(2)
Kowinearly	Westerwold diploid	Smith Seed Services														95	96					96(2)
LHT-102	Intermediate	Ampac Seed											100									–
Marshall	Westerwold diploid	The Wax Co.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(17)
Maximo	Intermediatetetraploid	Pickseed USA, Inc.										101										–
Melquatro	Italian tetraploid	Hood River Seed															135					–
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					87(4)
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	90		96(3)
Spark	tetraploid	DLF International																		73		–
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					100(3)
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																–
Verdure	Westerwold tetraploid	Smith Seed Services								86					42	58						72(2)
Winterhawk	Westerwold diploid	Oregro Seeds								104		117	92			119						108(4)
Winter Star	Italian tetraploid	Ampac Seed																	99			–
Zorro	Italian tetraploid	DLF International																132	134	104		123(3)

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

			Lexington														Princeton		Bowling Green		
			99[1,2]	01	03	04	05	06	07	08	09	10	11	12	13	14	00	02	00	03	Mean[3,4]
Variety	Type	Proprietor	2yr[5]	2yr	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	2yr	2yr	(#trials)
Aires	diploid	Ampac Seed		95														93			94(2)
Albion	tetraploid	Grasslands Oregon														105					–
Amazon	tetraploid	AgriBioTech	108			99												107			104(3)
Anaconda	tetraploid	Caudill Seed	113														95		103		104(3)
Aubisque	tetraploid	Seed Research of OR			144															99	122(2)
Bandit	tetraploid	Grassland West															106		114		110(2)
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					85(6)
Bison	hybrid tetraploid	International Seeds																		140	–
Boost	tetraploid	Allied Seed							130	125	120	143	110	103	102						119(7)
Boxer	tetraploid	AgriBioTech	121														106				114(2)
Calibra	tetraploid	DLF International								96	109	81	99	103	96	87		112			98(8)
CAS MP64	diploid	CascadeInternational		97																	–
Citadel	tetraploid	Ag Canada	101														94	113	103		103(4)
Crave	tetraploid	Ampac Seed												95							–
Derby	–	Public																	74		–
Elena DS	tetraploid	Allied Seed												110							–
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 International									107			92							100(2)
Kentaur	tetraploid	DLF International											106		117						112(2)
Lactal	tetraploid	Brett Young									102										–
Lasso	diploid	DLF International		98																	–
LHT-102	tetraploid	Ampac Seed												114							–

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

			Lexington														Princeton		Bowling Green		
			99[1,2]	01	03	04	05	06	07	08	09	10	11	12	13	14	00	02	00	03	Mean[3,4]
Variety	Type	Proprietor	2yr[5]	2yr	2yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	3yr	3yr	3yr	2yr	2yr	3yr	2yr	2yr	(#trials)
Linn (certified)	diploid	Public	87	98	98	102		98	85	84	101	92	93	80	95	83	87	88	77		91(16)
Manhatten	diploid	–																85			–
Mara	diploid	Barenbrug USA																	85		–
Matrix	diploid	Cropmark seeds			77															64	–
Maverick Gold	hybrid tetraploid	Ampac Seed		97														71			84(2)
Orantas	diploid	DLF International									82										–
Ortet	tetraploid	Oregro Seeds								114											–
PayDay	tetraploid	MountainViewSeeds												101	103	99					101(3)
Polly II	tetraploid	FS Growmark	104														110		125		113(3)
Polly Plus	hybrid tetraploid	Allied Seed			64															60	62(2)
Power	tetraploid	Ampac Seed							110	103	102	100	109	104	95	101					103(8)
Polim	tetraploid	DLF International										106									–
Quartermaster	tetraploid	Radix Research					122														–
Quartet	tetraploid	Ampac Seed		97			56		46									113			78(4)
RAD-CPS212	hybrid tetraploid	Radix Research					134														–
RAD-MI125	hybrid tetraploid	MountainViewSeeds						120													–
Remington	tetraploid	Barenbrug USA														95					–
RemingtonPLUSNEA2	tetraploid	Barenbrug USA														119					–
Sampson	diploid	International Seeds	87																		–
Sierra	diploid	Lewis Seed Co.					89														–
TetraGain	tetraploid	Pure Seed												111							–
TetraMag	tetraploid	MountainViewSeeds												110		136					123(2)
Tonga	tetraploid	Kings AgriSeeds					96				103										100(2)
Verseka	tetraploid	Allied Seed												75							–
Victorian	diploid	Caudill Seed													104	83					94(2)
Yatsyn	diploid	Barenbrug USA	80														89				85(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 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+).

		Lexington														Princeton	
		2000[1,2]	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2002	Mean[3]
Variety	Proprietor	4yr[4]	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	3yr	4yr	(#trials)
Advance MaxQ[5]	Pennington Seed							94									–
Bariane	Barenbrug USA				89		75	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	98	99		99(6)
Bronson	Ampac Seed										98	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	88															–
HyMark	Fraser Seeds									95			100				98(2)
Jesup EF	Pennington Seed				99							99	100	100			100(4)
Jesup MaxQ[5]	Pennington Seed			103	97		68	102	97	97	99	98	100	99	98	105	97(12)
Johnstone	Proseeds		92														–
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	83	101	100	98	99	99	100	100	99	105	100(14)
Kokanee	Ampac Seed	43															–
Lacefield MaxQ II[5]	Pennington Seed						82	102	99	98	98	97			99		96(7)
Maximize	Rose Agri-Seed		99														–
Nanryo	Japanese Grassland For.Seed								100								–
Orygun	–			99													–
Resolute	Ampac Seed		23														–
Select	Southern States	107	101	100	100		67	100	93	95	97	103	100	99	99	98	97(14)
Stargrazer	Southern States	86	89														79(4)
Stockman	Seed Res. of OR					102											–
Texoma MaxQ II[5]	Pennington Seed						88	100	98								95(3)
Tuscany II	Seed Res. of OR							101									–
Verdant	Am.Grass Seed							97									–

[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 a 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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