

# 2008 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 wild-life 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 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 10 to 12 years. Detailed variety reports and forage management publications are available at the University of Kentucky forage Web site at [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage).

## Species in This Report

**Red clover** (*Trifolium pratense* L.) is a high-quality, short-lived, perennial legume that is used in mixed or pure stands, for pasture, hay, silage, green chop, soil improvement, and wildlife habitat. This species is adapted to a wide range of climatic and soil conditions and, therefore, is versatile as a forage crop. Stands of improved varieties are generally productive for two to three years, with the highest yields occurring in the year following establishment. Red clover is used primarily as a renovation legume for grass pastures. It is a dominant forage legume in Kentucky because it is relatively easy to establish and has high forage quality and high yield.

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

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

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

**Tall fescue** (*Festuca arundinacea*) is a productive, well-adapted, persistent, soil-conserving, cool-season grass that is grown on approximately 5.5 million acres in Kentucky. This grass, used for both hay and pasture, is the forage base for most of Kentucky's livestock enterprises, particularly beef cattle. The predominant variety, KY31, was developed in Kentucky for long-term persistence but contains a fungal endophyte that produces alkaloids detrimental to livestock production and

reproductive health. Endophyte-free tall fescue varieties produce no detrimental alkaloids, but UK research shows that they are less persistent than KY31. New novel endophyte tall fescue varieties contain safe endophytes, which enhance stand persistence but cause no detrimental animal symptoms.

**Annual ryegrass** (*Lolium multiflorum*) and **perennial ryegrass** (*Lolium perenne*) are high-quality, productive, cool-season grasses used in Kentucky. Both have exceptionally high seedling vigor and are highly palatable to livestock. Annual ryegrasses are increasing in use across Kentucky as more winter-hardy varieties are released and promoted. Annual ryegrass is productive for four to six months 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.

**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 lasting two to four 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).

**Table 1. Summary of Kentucky White Clover Yield Trials 1998-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial.)**

Variety	Type	Proprietor	Lexington					Princeton		Quicksand		Eden Shale	Mean <sup>3</sup> (#trials)
			2002 <sup>1,2</sup>	2003	2004	2006	2007	2003	2005	1998	2003	2003	
			3yr <sup>4</sup>	3yr	3-yr	2-yr	2-yr	3yr	3-yr	3yr	2yr	2yr	
Advantage	Ladino	Allied Seed, L.L.C.		125								106	116(2)
Alice	Intermediate	Barenbrug						86					-
Avoca	Dutch	DLF International Seeds				59		82					71(2)
Barblanca	Intermediate	Barenbrug		92									-
CA ladino	Ladino	Public	100		124			103		100	98		105(5)
Colt	Intermediate	Seed Research of OR		90		57			114				87(3)
Common	Dutch	Public	100				53		78				77(3)
Crescendo	Ladino	Cal/West Seeds	105			140			109				118(3)
Excel	Ladino	Allied Seed, L.L.C.			100								-
Durana	Dutch	Pennington		94		94	88	87	83		101	95	92(7)
Insight	Ladino	Allied Seed, L.L.C.				128							-
Ivory	Intermediate	Cebeco	96										-
Ivory II	Intermediate	DLF International Seeds					86						-
Jumbo	Ladino	Ampac Seed	93										-
Kopu II	Intermediate	Ampac Seed	97			97	95						96(3)
Patriot	Intermediate	Pennington		103		87	104	104	100		98	99	99(7)
Pinnacle	Ladino	Allied Seed, L.L.C.				120			111				116(2)
Rampart	Ladino	Allied Seed, L.L.C.					80						-
Regal	Ladino	Public	99	96	92		125	107	100	100	104		103(8)
RegalGraze	Ladino	Cal/West Seeds				127	140						134(2)
Resolute	Intermediate	FFR/Southern States				63							-
Seminole	Ladino	Saddle Butte Ag. Inc			108	70	79						86(3)
Super Haifa	Intermediate	Allied Seed, L.L.C.			77								-
Tillman II	Ladino	Caudill Seed	103										-
Will	Ladino	Allied Seed, L.L.C.	107			162	150		136				139(4)

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 2002 was harvested 3 years, so the final report would be "2004 Red and White Clover Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.

## Important Selection Considerations

### Local Adaptation and Seasonal Yield.

Choose a variety that is adapted to 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 Web site at [www.uky.edu/Ag/Forage](http://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)

**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 by 15 feet in a randomized complete block design, with four replications. Grass plots were fertilized with 60 pounds of actual N per acre in March, after the first cutting, and again in late summer, for a total of 180 pounds per acre per season. 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. Manage-

ment practices for establishment, fertility, weed control, and harvest timing were in accordance with University of Kentucky recommendations.

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

Plots were grazed down to below 4 inches quickly and were maintained at 2 to 4 inches (sometimes less) for the remainder of the grazing season. Supplemental hay was fed during periods of slowest growth. Visual ratings of percent stand were made in the fall several weeks after the cattle were removed to check stand survival after the grazing season and in the spring prior to grazing to check on winter survival and spring growth. Because trials were seeded in rows, persistence ratings were based on density within a row and not total ground

**Table 2. Summary of Kentucky Red Clover Yield Trials 1998-2008 (yield shown as a percentage of the mean of the named commercial varieties in the trial).**

Variety	Proprietor	Lexington						Princeton				Quicksand				Eden Shale		Mean <sup>3</sup> (#trials)		
		00 <sup>1,2</sup>	00	01	02	03	04	06	99	00	03	05	98	01	03	05	00		03	
		3yr <sup>4</sup>	3yr	3yr	3yr	3yr	3yr	2-yr	3yr	3yr	3yr	2-yr	3yr	2yr	2yr	3-yr	3yr		2yr	
AA117ER	ABI Alfalfa							110				87				92			96(3)	
Acclaim	Allied Seed				92														-	
Arlington	WI Agr. Exp.Sta.				72														-	
Belle	Agribiotech	88			82				93										88(3)	
Cherokee	FL Agr. Exp. Sta.	78			65														72(2)	
Cinnamon	FFR/Sou.St.	111			108				115				100						109(4)	
Cinnamon Plus	FFR/Sou.St.					97		109				112				103			105(4)	
Dominion	Seed Research of OR							102				95				93			97(3)	
Duration	Cisco Co.			86	100									106					97(3)	
Emarwan	Turf-Seed						91							101					96(2)	
Freedom!	Barenbrug	108	105	127	123	96	118	91	103	105	110	136	109	111	103	119	102	102	110(17)	
Freedom!MR	Barenbrug				118	115	102	114				106	101			94	111		118	109(9)
FSG 9601	Allied Seed						89												-	
Greenstar	Genesis Turf												100						-	
Impact	Specialty Seeds	106	97							98									100(3)	
Kenland(cert.)	KY Ag.Exp.Sta.	110	111	127	139	118	117	117	117	104	102	92	112	111	88	105	104	98	110(17)	
Kenland(uncert)	Public												78	83					81(2)	
Kenstar	KY Ag.Exp.Sta.		105								104								105(3)	
Kenton	KY Ag.Exp.Sta.	100	93	119	109	90	95	112	104	98	95	105		93	99	106	102	98	101(16)	
Kenway	KY Ag.Exp.Sta.	106	104	111	134		97	119	103	100		94		100		103	102		106(12)	
Mammoth	Public								61										-	
Plus	Allied Seed	113			113				110								97		108(4)	
Prima	Public	92			74														83(2)	
Red Gold								81											-	
Red Gold Plus	Turner Seed		97	97			95			95				98			98		97(6)	
RedlanGraze	ABI Alfalfa	95							101										98(2)	
RedlanGraze II	Americas Alfalfa			91	104									93					96(3)	
Redland Max	ABI Alfalfa					95													-	
Redstart	Syngenta	102			78														90(2)	
Robust	Scott Seed	92																	-	
Rajo Diablo	Great Plains			99										101					100(2)	
Royal Red	FFR/Sou.St.	108	92		91				79								96		93(5)	
Scarlet	Dairyland	95																	-	
Sienna	Great Plains			91										106					99(2)	
Solid	Production Service	97	102		98	84		79	112	98	87	86	94			76	105	84	92(13)	
Starfire	Ampac Seed	97	93		99					98							95		96(5)	
Triple Trust 350	ABI Alfalfa							101				92				92			95(3)	
Vesna	DLF-Jenks			53										96					75(2)	

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 2000 was harvested 3 years, so the final report would be "2002 Red and White Clover Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.

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.

## 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 is 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. 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 which yearly report to refer to, see footnote in each table.

# Summary

Selecting a good forage variety is an important first step in establishing a productive stand of forage. Proper management, beginning with seedbed preparation and continuing throughout the life of the stand, is necessary for even the highest-yielding variety to produce to its genetic potential. For more detailed information on yield and grazing tolerance within species, go to individual 2007 reports on the forage Web site. See below for specific reports. The forage Web site also contains reports from 2001 through 2007.

## Yield and Grazing Tolerance Reports

(www.uky.edu/Ag/Forage/ForageVarietyTrials2.htm)

- 2008 Alfalfa Report (PR-573)
- 2008 Red and White Clover Report (PR-574)
- 2008 Tall Fescue and Brome Report (PR-577)
- 2008 Orchardgrass Report (PR-576)
- 2008 Timothy and Kentucky Bluegrass Report (PR-575)
- 2008 Annual and Perennial Ryegrass Report (PR-578)
- 2008 Alfalfa Grazing Tolerance Report (PR-579)
- 2008 Red and White Clover Grazing Tolerance Report (PR-580)
- 2008 Cool-Season Grass Grazing Tolerance Report (PR-581)
- 2008 Cool-Season Grass Horse Grazing Report (PR-582)

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**Table 3. Summary of Kentucky Alfalfa Yield Trials 1995-2008 (yield shown as a percentage of the mean of the commercial varieties in the test).**

Variety	Proprietor	Variety Characteristics <sup>1</sup>										Lexington						Princeton						Bowling Green <sup>2</sup>			Eden Shale			Mean <sup>6</sup> (# trials)								
		FD	Bw	Fw	An	PRR	APH	95 <sup>4,5</sup>	97	97	99	00	02	04	04	05	99	99	01	05	96	96	98	98	03	98	98	03	98		03							
Abilene +Z	America's Alf.	5	HR	HR	HR	HR	R																													102(2)		
ABT 205	W-L Research	2	HR	HR	HR	HR	R																														99(2)	
ABT 350	W-L Research	3	HR	HR	HR	HR	HR																														101(3)	
ABT 400SCL	W-L Research	4	HR	HR	HR	HR	HR																														102(2)	
ABT 405	W-L Research	4	HR	HR	HR	HR	R																														103(4)	
AC Longview	Newfield Seeds		HR																																	-		
Affinity+Z	ABI/Alfalfa	4	HR	HR	HR	HR	R																														101(3)	
Alfagaze	America's Alf.	2	MR	R	MR	R	-																														98(2)	
AmeriGraze 401+Z	America's Alf.	4	HR	HR	HR	HR	R																														101(5)	
AmeriStand 403T	America's Alf.	3	HR	HR	HR	HR	HR																													-		
Ameriguard 302+Z	America's Alf.	3	HR	HR	HR	HR	HR																														-	
Apollo	America's Alf.	4	R	R	R	R	-																														95(3)	
Arc (certified)	Public	4	LR	MR	HR	-	-																														94(14)	
Baralfa 53HR	Barenbrug	5	HR	R	R	HR	HR																														-	
Baralfa 54	Barenbrug	-	R	HR	HR	HR	HR																														98(2)	
Buffalo	Public	-	-	-	-	-	-																														92(5)	
Choice	FFR/Sou. St.	4	HR	R	R	HR	R																														104(6)	
Cimarron3i	Great Plains	4	HR	HR	HR	HR	HR																														98(3)	
Cimarron SR	Great Plains	4	HR	HR	HR	HR	MR																														102(2)	
Cimarron VR	Great Plains	5	HR	HR	R	R	MR																														-	
Demand	ABI/Alfalfa	3	HR	HR	HR	HR	R																														-	
Depend+EV	ABI/Alfalfa	-	-	-	-	-	-																															-
DK 127	Monsanto	3	HR	HR	HR	HR	-																															107(2)
DK 133	Monsanto	4	HR	HR	HR	HR	R																															105(2)
DK 131HQ	Monsanto	3	HR	HR	HR	HR	R																														-	
DK 140	Monsanto	4	HR	HR	HR	HR	H																															101(6)
DK 141	Monsanto	4	HR	HR	HR	HR	H																														100(3)	

continued





**Table 4. Summary of Kentucky Tall Fescue Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).**

Variety	Proprietor	Lexington				Princeton					Quicksand				Mean <sup>3</sup> (#trials)
		1999 <sup>1,2</sup> 2-yr <sup>4</sup>	2001 3-yr	2003 2-yr	2005 3-yr	1998 2-yr	2000 2-yr	2002 3-yr	2004 3-yr	2006 2-yr	1999 2-yr	2001 2-yr	2003 2-yr	2005 3-yr	
Atlas	Proseeds	107									89				98(2)
Bariane	Barenbrug			87	103									95	95(3)
Barolex	Barenbrug				94										-
BAR 9 TMPO	Barenbrug	96									97				97(2)
Bronson	Ampac Seed				91								102		96(2)
Bull	Improved Forages			98	106		102	103					97		101(5)
Carmine	DLF International		99									97			98(2)
DLF-B	DLF International	96													-
Enhance	Allied Seed								111						-
Festival	Pickseed West		107							106		107			107(3)
Fuego	Advanta Seeds	99													-
Hoedown	DLF International		104									106			105(2)
Jesup EF	Pennington Seed					106									-
Jesup MaxQ	Pennington Seed				102			98					100	103	101(4)
Johnstone	Proseeds	95	108								95				99(3)
KENHY	KY Agric Exp Sta.								92						-
Kokanee	Ampac Seed		89				86								88(2)
KY31+	KY Agric Exp Sta.	102	118	113	112	122	108	104	77	101	107	124	98	110	107(13)
Maximize	Turf-Seed	96	95								105	93			97(4)
Resolute	Ampac Seed		90									65			78(2)
Savory	DLF International									94					
Seine	Advanta Seeds	99							100						99(2)
Select	FFR/Sou. St.	106	106	94	103	105	105	95	109	103	107	112	102	90	103(13)
Stockman	Seed Research of OR			109					104	100			105		105(4)
TF33	Barenbrug					70									-
Tuscany	Forage Genetics		112												-
Tuscany II	Seed Research of OR									102					-
Vulcan	International Seeds					97									-

**Summary of Kentucky Festulolium Yield Trials**

Duo	Ampac Seed	104			84										94(2)
Felina	DLF International		101												-
Hykor	DLF International			98									98		98(2)
Spring Green	Turf-Seed		88		105							97			97(3)
Vorage	Improved Forages						99								-

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 1999 was harvested 2 years, so the final report would be "2001 Tall Fescue Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.

**Table 5. Summary of Kentucky Orchardgrass Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).**

Variety	Proprietor	Lexington				Princeton					Quicksand				Mean <sup>3</sup> (#trials)	
		1999 <sup>1,2</sup> 2-yr <sup>4</sup>	2001 2-yr	2003 3-yr	2006 3-yr	1998 2-yr	2000 2-yr	2002 3-yr	2004 3-yr	2006 2-yr	1999 2-yr	2001 2-yr	2003 3-yr	2005 3-yr		
Abertop	Pennington							71							-	
Albert	Univ. of Wis.		103									106			105(2)	
Amba	DLF International Seeds		96									80			88(2)	
Ambassador	DLF International Seeds								95						-	
Ambrosia	American Grass Seed Prod.									87					-	
Athos	DLF International Seeds		98									105			102(2)	
Benchmark	FFR/Sou. St.	103				101	97	113			106				104(5)	
Benchmark Plus	FFR/Sou. St.			96				107			107		107	101	104(5)	
Boone	Public					103	104								104(2)	
Bronc	Grassland West						98								-	
Bounty	Allied Seed			105										99	102(2)	
Century	Seed Research of Oregon			97										105	101(2)	
Command	Seed Research of Oregon								87						-	
Crown	Donley Seed	101				105		101			97				101(4)	
Crown Royale	Donley Seed											110			-	
Crown Royale Plus	Donley Seed							108					97		103(2)	
Eastwood	Ampac Seed		86									86			86(2)	
Endurance	DLF International Seeds										103				-	
Extend	Allied Seed								100						-	
Hallmark	James VanLeeuwen		102	102				103	98			101	96		100(6)	
Harvestar	Columbia seeds			96							110			99	102(3)	
Haymaster	FFR/Sou. St.			95										96	96(2)	
Haymate	FFR/Sou. St.	106				93	100	106			108	104	103		103(7)	
Icon	Seed Research of Oregon			106										98	102(2)	
Intensiv	Barenbrug			102											-	
LG-31	DLF International Seeds									92					-	
Mammoth	DLF International Seeds		102									104			103(2)	
Megabite	Turf-Seed	94	105								101				100(3)	
Niva	DLF International Seeds							81							-	
Persist	Smith Seed			123	105				101				108	101	108(5)	
Potomac	Public	104						98			99				100(3)	
Prairie	Turner Seed		101		104		95	104			101	102	105	108	103(8)	
Renegade	Grassland West						95								-	
Shiloh	Proseeds Marketing					109									-	
Shiloh II	Proseeds Marketing								117						-	
Spanish Pink	DLF International Seeds					82									-	
Spanish Red	DLF International Seeds	101									94				98(2)	
Takena	Smith Seed		107					100				108			105(3)	
Takena II	Smith Seed			110	102				109				106	105	106(5)	
Tekapo	Ampac Seed	88			86						95	94	92	105	89	93(7)
Tucker	Oregro Seeds										97				-	
Udder	Improved Forages			100	108		102	102						106	99	103(6)
Vision	Cropmark Seeds			63										67	65(2)	

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 1999 was harvested 2 years, so the final report would be "2001 Orchardgrass Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.



**Table 6. Summary of Kentucky Timothy Yield Trials 2000-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial.**

Variety	Proprietor/KY Distributor	Lexington				Quicksand		Princeton		Mean <sup>3</sup> (#trials)
		00 <sup>1,2</sup>	01	02	06	99	01	00	04	
		2yr <sup>4</sup>	3yr	4yr	2-yr	2yr	2yr	3yr	2yr	
<b>Commercial Varieties-Available for Farm Use</b>										
Alma	Newfield Seeds Co/Caudill Seed Co.								81	-
Auroro	General Feed and Grain	100				98				99(2)
Clair	Ky Agric. Exp. Station		109	115	111		108		122	113(5)
Classic	Cebeco International Seeds	100		88		87				92(3)
Climax	Canada Agr. Res. Station				83					-
Colt	FFR Cooperative	105		101	92	112			99	102(5)
Common	Public		96							-
Derby	FFR Cooperative				115				124	120(2)
Dolina	DLF-Trifolium	100		91						96(2)
Express	Seed Research of Oregon			97						-
Hokuei	Snow Brand Seed	103								-
Hokusei	Snow Brand Seed	97				99				98(2)
Joliet	Newfield Seeds Co/Caudill Seed Co.								90	-
Jonaton	Newfield Seeds Co/Caudill Seed Co.								84	-
Outlaw	Grassland West Company							107		-
RAD-EMR74	Radix Research				69					-
Richmond	Pickseed Canada Inc.	100				103				102(2)
Summit	Allied Seed, L.L.C.			114						-
Talon	Seed Research of Oregon				118					-
Treasure	Seed Research of Oregon				111					-
Tundra	DLF-Trifolium	95								-
Tuukka	Ampac Seed Company		95	90			92	93		93(4)

<sup>1</sup>Year trial was established.

<sup>2</sup>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 2000 was harvested 2 years, so the final report would be "2002 Timothy Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

<sup>3</sup>Mean only presented when respective variety was included in two or more trials.

<sup>4</sup>Number of years of data.

**Table 7. Summary of Kentucky Bluegrass Yield Trials 1996-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial.**

Variety	Proprietor/KY Distributor	Lexington				Princeton	Mean <sup>3</sup> (#trials)
		96 <sup>1,2</sup>	03	04	06	02	
		3yr <sup>4</sup>	2yr	3yr	2-yr	3yr	
Adam 1	Radix Research			98		-	
Barderby	Barenbrug				114	-	
Common	Public				55	-	
Ginger	ProSeeds Marketing		89		132	111(2)	
Kenblue	Public	90		102	138	110(3)	
Lato	Turf Seed Inc.	110				-	
RAD-339	Radix Research				100	-	
RAD-5	Radix Research				91	-	
RAD-643	Radix Research				112	-	
RAD-731zx	Radix Research				84	-	
RAD-762	Radix Research				88	-	
Slezanka	DLF International Seeds		111			-	

<sup>1</sup>Year trial was established.

<sup>2</sup>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 2004 was harvested 2 years, so the final report would be "2006 Timothy and Kentucky Bluegrass Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>. The 96 and 03 Lexington and 02 Princeton results are in the appropriate Tall Fescue Reports.

<sup>3</sup>Mean only presented when respective variety was included in two or more trials.

<sup>4</sup>Number of years of data.

**Table 8. Summary of Kentucky Annual Ryegrass Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).**

Variety	Proprietor	Lexington <sup>1</sup>					Princeton			Bowling Green		Mean <sup>4,5</sup> (#trials)	
		1999 <sup>2,3</sup>	2001	2003	2004	2005	2007	2000	2002	2004	2000		2003
All trials are 1 year yields													
Andy	DLF International	112	105					99				105(3)	
Angus I	DLF International									80		-	
Aurelia	Forage Genetics		120							130		125(2)	
Avance	DLF International	113						109				111(2)	
Barextra	Barenbrug								117			-	
Big Daddy	FFR/Sou. St.	87	86					90	85		104	90(5)	
Common	Public							85	85		95	87	88(4)
DH-3	Allied Seed							106				-	
Domino	DLF International								121			-	
Fantastic	Ampac Seed	83					98	90			97	92(4)	
Feast	Ampac Seed		90									-	
Feast II	Ampac Seed		98							123		111(2)	
Graze-N-Gro	Seed Research of OR			105			78			94		107	96(4)
Gulf	Public		72				78	81	77	57	86		75(6)
Hercules	Barenbrug	114						110					112(2)
Jackson	The Wax Co.				80	100	120		87			96	97(5)
Jeanne	DLF International		124										-
Jumbo	Barenbrug			103								104	104(2)
King	Lewis Seed		92										-
Marshall	The Wax Co.	87		92	120	100	116	102	97		114	106	104(9)
Monarque	Seed Research of OR									117			-
Passerel Plus	Pennington Seed								100				-
Rio		88						100	97		102		97(4)
Spark	DLF International	87									83		85(2)
Striker	Seed Research of OR						104						-
Tam 90									85				-
Tetrelite II	DLF International									122			-
Winter Star	Ampac Seed		87						96				92(2)
Zorro	DLF International	120	127					135	130		118		126(5)

<sup>1</sup> Due to severe winterkill, the results of the 2006 planting are not shown. See Table 2 for yield and stand data.

<sup>2</sup> Year trial was established.

<sup>3</sup> 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 1999 was harvested 1 year, so the final report would be "2000 Annual and Perennial Ryegrass Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>4</sup> Mean only presented when respective variety was included in two or more trials.

<sup>5</sup> In annual ryegrass, low yielding varieties usually result from winterkill.

**Table 9. Summary of Kentucky Perennial Ryegrass Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).**

Variety	Proprietor	Lexington						Princeton		Bowling Green		Mean <sup>3,4</sup> (#trials)
		1999 <sup>1,2</sup> 2yr <sup>5</sup>	2001 2yr	2003 2yr	2004 3yr	2005 3-yr	2006 2-yr	2000 2yr	2002 3yr	2000 2yr	2003 2yr	
Aires	Ampac Seed		95						93			94(2)
Amazon	AgriBioTech	108			99				107			104(3)
Anaconda	Caudill Seed	113						95		103		104(3)
Aubisque	Seed Research of OR			144							99	122(2)
Bandit	Grassland West							106		114		110(2)
Bastion C-2	Seed Research of OR				91							-
Bestfor	Improved Forages							113	107	120		113(3)
Bestfor Plus	Improved Forages			116	108	118					136	120(4)
BG-34	Barenbrug					83	85					84(2)
Bison	International Seeds										140	-
Boxer	AgriBioTech	121						106				114(2)
Calibra	DLF International								112			-
CAS MP64	Cascade International		97									-
Citadel	Ag Canada	101						94	113	103		103(4)
Derby	Public									74		-
Granddaddy	Smith Seed		118					101	111			110(3)
GreenGold	Grasslands Oregon						96					-
Lasso	DLF International		98									-
Linn	Public	87	98	98	102		98	87	88	77		92(8)
Manhattan									85			-
Mara	Barenbrug									85		-
Matrix	Cropmark seeds			77							64	-
Maverick Gold	Ampac Seed		97						71			84(2)
Polly II	FFR/Sou. St.	104						110		125		113(3)
Polly Plus	Allied Seed			64							60	62(2)
Quartermaster	Radix Research					122						-
Quartet	Ampac Seed		97			56			113			88(3)
RAD-CPS212	Radix Research					134						-
RAD-MI125	Mountain View Seeds						120					-
Sampson	International Seeds	87										-
Sierra	Lewis Seed Co.					89						-
Tonga	Kings AgriSeeds					96						-
Yatsyn	Barenbrug	80						89				85(2)

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 1999 was harvested 2 years, so the final report would be "2001 Annual and Perennial Ryegrass Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> In perennial ryegrass, low yielding varieties usually result from winterkill or summer mortality.

<sup>5</sup> Number of years of data.

<b>Table 10. Summary of Kentucky White Clover Grazing trials 2002-2008 (stand persistence shown as a percent of the mean of the commercial varieties in the test.)</b>							
Variety	Type	Proprietor	2002 <sup>1,2</sup>	2004	2006 <sup>3</sup>	2006	Mean <sup>4</sup> (#trials)
			2yr <sup>5</sup>	4yr	2yr	2yr	
Alice	Intermediate	Barenbrug USA		59	98		79(2)
Barblanca	Intermediate	Barenbrug USA		118	91	151	120(3)
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	97(3)
Insight	Ladino	Allied Seed				77	-
Ivory	Intermediate	Cebeco	132	142			137(2)
Kopu II	Intermediate	Ampac Seed			77	122	100(2)
Patriot	Intermediate	Pennington		110	137	122	123(3)
Regal	Ladino	Public	92		57	54	68(3)
RegalGraze	Ladino	Cal/West			84	87	86(2)
Resolute	Intermediate	FFR/Southern States			101	106	104(2)
Seminole	Ladino	Saddle Butte Ag. Inc.		75		97	86(2)
Tillman II	Ladino	Caudill Seed	92				-
Will	Ladino	Allied Seed			117	87	102(2)

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 2002 was grazed for 2 years so the final persistence report would be "2004 Red and White Clover Grazing Tolerance Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

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

<sup>4</sup> Mean only presented when respective variety was included in two or more trials.

<sup>5</sup> Number of years of data.

**Table 11. Summary of Kentucky Alfalfa Grazing trials 1994-2008 (stand persistence shown as a percent of the grazing tolerant Alfagraz).  
Variety Characteristics<sup>1</sup>**

Variety	Proprietor	Disease Resistance <sup>2</sup>										1994 <sup>3,4</sup>					2000				2005		2006		Mean <sup>5</sup> (#trials)					
		FD	Bw	Fw	An	PRR	APH	3yr <sup>6</sup>	3yr	4yr	3yr	3yr	2yr	3yr	4yr	2001	2000	2000	2001	2004	2005	2006	2-yr							
ABT 205	W-L Research	2	HR	HR	HR	HR	R	HR	HR	HR	R	94		84															89(2)	
ABT 350	W-L Research	3	HR	HR	HR	HR	HR	HR	HR	HR	HR												46							
ABT 405	W-L Research	4	HR	HR	HR	HR	R	HR	R	HR	R	71	129	69				100				46	100						83(5)	
Alfagraz	Americas Alfalfa	2	MR	R	MR	R		HR	R	HR		100	100	100	100	100		100	100	100		100	100					100(10)		
Amerigraze 401 +Z	Americas Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	R		120	53	56			125				85							78(6)	
Ameristand 403T	Americas Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR											123							125(2)	
Ameristand 407TQ	Americas Alfalfa																					146								
Apollo	Americas Alfalfa	4	R	R	R	R	R	R	R	R	R	48	75	33	47			25				31	31						39(9)	
Arc (certified)	Public	4	LR	MR	HR	HR	HR	HR	HR	HR		38																		
Baralfa 54	Barenbrug USA		R	HR	HR	HR	HR	HR	HR	HR	HR				78															
Cut-n-Graze	Americas Alfalfa	3	HR	HR	HR	HR	HR	HR	HR	HR	R	68																		
FK 421	Donley Seed Co.	4	HR	H	H	H	H	H	H	H	H						100													
Feast	Gairt Seeds	3	HR	HR	HR	HR	HR	HR	HR	HR	R	146			87							92							108(3)	
Fortress	Syngenta	3	R	R	R	R	R	R	R	R	R	40	71																56(2)	
Gold Plus	PGI Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	R				81															
Grazeking	FFR/Southern States	5	MR	HR	HR	HR	R	R	R	R	S		91	41															61(3)	
Haygrazer	Great Plains Research	4	HR	HR	HR	HR	R	R	R	R	MR		75	39								38							51(3)	
Integrity	PGI Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR															128				
Legacy	Green Seed	4	R	R	R	R	R	R	R	R	R	32																		
Magnagraz	Dairyland Seed Co.	3	HR	HR	HR	R	R	R	R	R		56																		
Pasture Plus	MBS	3	HR	HR	HR	R	R	R	R	R	MR		60																	
Pioneer 98	Pioneer	3	HR	R	HR	R	HR	R	R	R					56															
ProGro	MBS Inc.	4	HR	HR	HR	R	R	R	R	HR	MR				81															
Quantum	ABI Alfalfa	2	HR	HR	HR	HR	HR	HR	HR	HR	R	71																		
Rebel	Target Seed	4	HR	HR	HR	HR	HR	HR	HR	HR	HR															114				
Rugged	Target Seed	3	HR	HR	HR	HR	HR	HR	HR	HR	HR															127				
Rushmore	Syngenta	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	32																		
Saranac AR (cert.)	Public	4	MR	R	HR	HR	HR	HR	HR	LR		77					100												89(2)	
Spredor 3	Syngenta	1	HR	HR	R	MR	R	MR	R	MR	S	71	123		75										114				96(4)	
Stampede	Allied Seed	3	HR	R	R	R	R	HR	R	HR	R	73																		
Triple Trust 450	ABI/America's Alfalfa	5	HR	HR	HR	HR	HR	HR	HR	HR	HR														94					
Wintergreen	ABI Alfalfa	3	HR	HR	HR	HR	HR	HR	HR	HR	R	95		57	72														75(3)	
WL 326GZ	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	HR		118		88														103(2)	
115 Brand	Monsanto	3	HR	HR	HR	R	R	HR	R	HR	R																		71(2)	
5373	Pioneer	4	HR	HR	HR	HRT	HR	HR	LR	MR	LR	21																		
5432	Pioneer	4	HR	HR	HR		HR		MR									51												

<sup>1</sup> 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.

<sup>2</sup> Disease resistance: S=susceptible, LP=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.

<sup>3</sup> Year trial was established.

<sup>4</sup> 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 1996 was grazed for 3 years so final persistence report would be "1999 Alfalfa Grazing Tolerance Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>5</sup> Mean only presented when respective variety was included in two or more trials.

<sup>6</sup> Number of years of data.

**Table 12. Summary of 1996-2008 Kentucky Tall Fescue Grazing Tolerance Trials (stand persistence shown as a percent of the stand rating of KY 31+).**

Variety	Proprietor	Lexington										Princeton	Mean <sup>3</sup> (#trials)
		1996 <sup>1,2</sup> 3yr <sup>4</sup>	1997 4yr	1998 3yr	1999 4yr	2000 4yr	2001 4yr	2002 4yr	2003 4yr	2004 4-yr	2005 3-yr	2002 4yr	
Bariane	Barenbrug USA								89		88		89(2)
Barcel	Barenbrug USA	92											-
Barolex	Barenbrug USA										95		-
BAR9TMPO	Barenbrug USA				75								-
Bronson	Ampac Seed			39									-
Cattle Club	Green Seed		37	98	70	93	91						78(2)
Carmine	DLF-Jenks						90						-
Cowgirl	Rose Agri-Seed									99			-
Dovey	Barenbrug USA	92											-
Festival	Pickseed West						100	101				89	97(3)
Festorina	Advanta Seeds	98	86		57								80(3)
Fuego	Advanta Seeds			27									-
Hoedown	DLF-Jenks					88							-
Jesup EF	Pennington Seed		63	91					99				84(3)
Jesup MaxQ	Pennington Seed			114	79			103	97		98	105	99(6)
Johnstone	Proseeds		65	107			92						88(3)
KY31+	KY Agri. Exp Sta.	100	100	100	100	100	100	100	100	100	100	100	100(11)
KY31-	KY Agri. Exp Sta.	94	90	102	84		98	103	98	100	99	105	97(10)
Kenhy	Public			116									-
Kokanee	Ampac Seed					43							-
Martin II	International Seeds		59										-
Maximize	Rose Agri-Seed						99						-
Orygun								99					-
Resolute	Ampac Seed						23						-
Select	FFR/Sou. St.			109	69	107	101	100	100		99	98	98(8)
Southern Cross			25										-
Stargrazer	FFR/Sou. St.	90			52	86	89						79(4)
Stockman	Seed Res. of OR									102			-
TF33	Barenbrug USA			34									-
Vulcan	International Seeds			109									-

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 1997 was grazed 4 years so the final report would be "2001 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.

**Table 13. Summary of 1996-2008 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 <sup>3</sup> (#trials)	
		1996 <sup>1,2</sup> 3yr <sup>4</sup>	1997 4yr	1998 3yr	1999 4yr	2000 4yr	2001 4yr	2002 4yr	2003 4yr	2004 4-yr	2005 3-yr	2002 4yr		
Abertop	Pennington Seed							38						-
Albert	Univ. of Wisconsin						115							-
Amba	DLF-Jenks						71							-
Ambrosia	Pennington Seed		90											-
Athos	DLF-Jenks						93				100			97(2)
Benchmark	FFR/Sou. States	100	105	115	94	118	123	114					133	113(8)
Benchmark Plus	FFR/Sou. States							120			102		133	118(3)
Boone	Public			131		102								117(2)
Cheyenne	Western Prod. Inc.			94										-
Command	Seed Research of OR									81				-
Crown	Donley Seed		86	96										91(2)
Crown Royale	Donley Seed						100							-
Crown Royale Plus	Donley Seed							124					83	104(2)
Hallmark	James VanLeeuwen	107		104	103		115		113				83	104(6)
Haymate	FFR/Sou. States	93	71	102	96	53	115	100	118				83	92(9)
Intensiv	Barenbrug USA								51					-
Mammoth	DLF-Jenks						115							-
Megabite	Turf Seed						77							-
Niva	DLF-Jenks							76					83	80(2)
Persist	Smith Seed										107			-
Pizza	Advanta Seeds			63										-
Potomac	Public	98						116		119			117	113(4)
Prairie	Turner Seed					127	121						83	110(3)
Profile	Scott Seed	98						116						107(2)
Progress	Scott Seed	111												-
Tekapo	Ampac Seed	93	166	92	104		55	74	118		91	100		99(9)
Takena	Smith Seed		81				99							90(2)
WP300	Western Prod. Inc.			94										-

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 1997 was grazed 4 years so the final report would be "2001 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.

**Table 14. Summary of 2000-2008 Kentucky Perennial Ryegrass Grazing Tolerance Trials (stand persistence shown as a percent of the mean of the commercial varieties in the trial).**

Variety	Proprietor	2000 <sup>1,2</sup>	2001	2003	2005	Mean <sup>3</sup> (#trials)
		4yr <sup>4</sup>	3yr	4yr	3-yr	
AGRLP103	AgResearch USA	133		86		110(2)
Aries	Ampac Seed		139			-
BG 34	Barenbrug USA				176 <sup>5</sup>	-
Citadel	Donley Seed	112				-
Granddaddy	Smith Seed Services		121			-
Lasso	DLF-Jenks		130			-
Linn	Public	117	129	63		103(3)
Maverick	Ampac Seed		36			-
Polly II	FFR/Southern States	37	68			53(2)
Quartet	Ampac Seed		77		63	70(2)
Remington	Barenbrug USA			151 <sup>5</sup>		-
Tonga	Kings AgriSeeds				61	-

<sup>1</sup>Year trial was established.

<sup>2</sup>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 2000 was grazed 4 years so the final report would be "2004 Cool-Season Grass Grazing Tolerance Report" archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup>Mean only presented when respective variety was included in two or more trials.

<sup>4</sup>Number of years of data.

<sup>5</sup>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.



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