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Agricultural Experiment Station

2025 Cool-season Grass Horse Grazing Tolerance Report

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Introduction

Cool-season forages such as Kentucky bluegrass, tall fescue, and orchardgrass are dominant pasture grasses for horses in Kentucky. Variety evaluations for yield have been carried out for many years, but little work has been done to evaluate varieties of these grasses for persistence when subjected to close, continual grazing by horses.

The purpose of this report is to summarize current research on the grazing tolerance of varieties of tall fescue, orchardgrass, and other species when subjected to continuous heavy grazing pressure by horses within the growing season. The focus will be on stand survival, but data on seedling vigor and grazing preference are also included.

Consult the UK Forage Extension website (https://forages.ca.uky.edu) to access all forage variety testing reports from Kentucky and surrounding states as well as several other forage publications.

Important Selection Considerations

Local adaptation and seasonal yield. Select a variety that is adapted to Kentucky as indicated by good performance across years and locations in replicated trials, such as those presented in this publication. Grazing persistence data should be used in combination with yield data to select the best variety for pasture use. Refer to the appropriate yield trial reports for data on specific varieties of interest.

Seed quality. Buy premium-quality seed that is high in germination, high in 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. Take note of other information on the label including the test date (which must be within the previous nine months), level of germination, and percentage of other crop and weed seed. Order seed well in advance of planting time to assure that it will be available when needed.

Important: When seeding perennial ryegrasses for pasture for horses of any kind, insist on an endophyte-free variety. The endophyte level should be stated on a green tag on every bag of seed. Most forage types of perennial ryegrass are endophyte free, but most new turf types are infected. The ryegrass endophyte is similar to that of tall fescue and produces alkaloids that are toxic to horses and cattle. Similarly, when seeding tall fescue, insist on endophyte-free or novel endophyte varieties. Seed of novel endophyte varieties should be handled carefully to preserve the infection (keep the endophyte fungus alive), which means keeping seed cool and planting as soon as possible. Novel endophyte tall fescue varieties are good options for horses because of their improved persistence and absence of the toxic alkaloid ergovaline. The exception is the novel endophyte variety BarOptima PLUS E34. It contains low levels of the alkaloid ergovaline and therefore should never be seeded in pastures where pregnant mares are grazing, since they are very sensitive to ergovaline during their last trimester.

Description of the Tests

Tests were established in Lexington in the fall of 2021, 2022, 2023, and 2024. The soils at this location are well-drained silt loams and are well suited to tall fescue, orchardgrass, and other cool-season grasses. Plots were 5 feet by 15 feet in a randomized complete block design, with each variety replicated six times. Plots were seeded at the recommended seeding rate per acre and were planted into a prepared seedbed using a disk drill. Grazing was continuous from April to October.

In spring, plots were grazed down to below 4 inches quickly and were maintained at 1 to 3 inches for the remainder of the grazing season. Individual trials were occasionally clipped to remove seedheads or weed growth not controlled by herbicides. Supplemental hay was fed during periods of slowest growth. Visual ratings of percent stand were made in the fall several weeks after the horses were removed and in the spring prior to resuming grazing to assess winter survival and spring growth. Since trials were seeded in rows, persistence ratings were based on density within a row and not total ground cover. Grass plots were fertilized with 30 pounds of actual N per acre in March, 30 pounds of actual N in May, and 40 pounds of actual N in early November after 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

Weather data for Lexington are presented in Table 1. Data on percent stand are presented in tables 2, 3, 4, and 5. Statistical analyses were performed on all entries (including experimentals) to determine if numerical differences are truly due to variety. To determine if two varieties are truly different, compare the difference between the two varieties to the least significant difference (LSD) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different when grown under the conditions at a given location. The coefficient of variation (CV) is a measure of the variability of the data and is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

In general, commercial varieties of tall fescue and orchardgrass tolerated overgrazing well (tables 2, 3, and 4). Perennial ryegrasses, Kentucky bluegrasses, and festuloliums vary in tolerance to grazing by horses.

The lack of a defined "grazing-tolerant variety" for these species makes absolute interpretation difficult. For example, endophyte-infected Kentucky 31 (KY31+) is known to be grazing tolerant. (Note: KY31+ is not recommended for late term mares because of toxicity issues associated with ergovaline production.) However, there are no proven grazing-tolerant varieties for the other species. Still, certain varieties were clearly more tolerant than others.

Differences in tolerance among varieties could be due to true grazing tolerance but also to preference, especially when highly palatable species such as Kentucky bluegrass and perennial ryegrass were in the same test as tall fescue. Horses tend to graze the preferred species and varieties more intensely than others. Because of potential preference between species, comparison between varieties is most accurate within a species. These data should be taken as an indication of tolerance to periods of overgrazing. For best pasture stands, forage grasses should not be abused as in this study.

Tables 2, 3, 4, and 5 include preference ratings made two to three weeks after horses started grazing. These ratings do not provide information on initial preference but do provide a good indication of the varieties that the horses repeatedly grazed during the first few weeks on pasture.

Table 6 shows information about proprietors/distributors for all varieties in these tests. Varieties are listed in alphabetical order, with experimental varieties at the bottom.

How to Interpret the Summary Tables

Tables 7, 8, and 9 are summaries of stand persistence data from 1999 to 2025 of commercial tall fescue, orchardgrass, and perennial ryegrass (festuloliums are included with perennial ryegrass) varieties that have been entered in the Kentucky trials. In Table 7 the data for each is listed as a percentage of endophyte-free KY31 (KY31-). In other words, the stand persistence values for all varieties in the tall fescue trials are set as a percentage of KY31- whose value is set as 100 percent. Varieties with percentages over 100 persisted better than KY31-, and varieties with percentages less than 100 persisted less well than KY31-. In tables 8 and 9, the data is listed as a percentage of the mean of the commercial varieties entered in each specific trial. In other words, values for persistence of the varieties in the trial is expressed as a percentage of the mean value for that trial. Varieties with percentages over 100 persisted better than average, and varieties with percentages less than 100 persisted less well than average. Statistical differences between varieties cannot be determined using the data in tables 7, 8, and 9, but comparisons can help identify varieties for further consideration. Varieties that have performed better than average over many years have very stable performance; others may have performed well in wet years or on particular soil types. These details can influence variety choice, and more information can be found in the yearly reports. See the footnotes in Tables 7, 8 and 9 to determine which yearly report should be referenced.

Summary

These studies indicate there are varieties of cool-season grasses that can tolerate overgrazing by horses for three to four seasons and maintain reasonable stands. This information should be used along with yield and other information (for example, relative maturity in spring) in selecting the best grass variety for each individual use. See yield variety trials on the UK Forage website (https://forages.ca.uky.edu) or the summary publication 2025 Long-Term Summary of Kentucky Forage Variety Trials (PR-880) that shows variety comparisons over all species. Tall fescue, orchardgrass, or other cool-season grasses should not be continually overgrazed as was done in this trial. Although several varieties expressed tolerance to the level of grazing pressure in these trials, overgrazing greatly reduces forage production and stand persistence. This information should be used as an indication of those varieties which will better withstand overgrazing when it occurs.

Good management for maximum production and stand life from any grass would be to allow complete establishment before grazing and to avoid overgrazing during times of extreme stress, such as drought. For further information about grazing management, refer to the following College of Agriculture publications, available at the local county Extension office or in the publication section of the UK Forage website at www.forages.ca.uky.edu.

- Rotational Grazing (ID-43)
- Tall Fescue (AGR-59)
- Fescue Toxicosis (ID-221)
- Broadleaf Weeds of Kentucky Pastures (AGR-207)
- Weed Management in Grass Pastures, Hayfields and Other Farmstead Sites (AGR-172)
- Establishing Horse Pastures (ID-147)
- Improving Kentucky Horse Pastures
- Tall Fescue Novel Endophyte Varieties and Establishment for Livestock and Horse Pastures (AGR-275)
- Soil Sampling and Nutrient Management in Horse Pastures (AGR-200)

About the Authors

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Table 1. Temperature and rainfall at Lexington, Kentucky, in 2022, 2023, 2024, and 2025.

	2022				2023				2024				2025[2]			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	29	-2	4.93	+2.07	44	+13	6.28	+3.42	32	+1	5.50	+2.60	27	-4	2.80	-0.06
FEB	38	+3	7.69	+4.48	47	+12	3.73	+0.52	44	+9	3.90	+0.70	37	+2	6.10	+2.89
MAR	49	+5	4.27	-0.13	48	+4	4.45	+0.05	49	+5	3.50	-0.90	49	+5	3.90	-0.50
APR	55	0	3.71	-0.17	58	+3	2.36	-1.52	58	+3	3.90	0.00	57	+7	10.80	+6.92
MAY	69	+5	3.84	-0.63	65	+1	2.53	-1.94	67	+3	4.60	+0.10	62	-2	7.30	+2.83
JUN	76	+4	2.10	-1.56	72	0	6.75	+3.09	74	+2	2.40	-1.30	75	+3	8.20	+4.54
JUL	80	+4	6.46	+1.46	78	+2	5.32	+0.32	77	+1	2.50	-2.50	79	+3	3.90	-1.10
AUG	77	+2	4.27	+0.34	76	+1	2.40	-1.53	75	0	3.30	-0.60	73	+2	1.80	-2.13
SEP	70	+2	1.50	-1.70	71	+3	0.99	-2.21	70	+2	6.20	+3.00	70	+2	2.70	-0.5
OCT	57	0	0.96	-1.61	61	+4	2.30	-0.27	58	+1	0.30	-2.30	58	+1	8.10	+6.13
NOV	49	+4	2.1	-1.29	49	+4	1.7	-1.69	50	+5	3.80	-0.41				
DEC	40	+4	3.46	-0.52	44	+8	2.41	-1.57	40	+4	3.9	-0.08				
Total			45.29	+0.74			41.22	-3.33			43.80	-0.75			55.60	+18.4

[1] DEP is departure from the long-term average.
[2] 2025 data is for ten months through October.

Table 2. Seedling vigor, grazing preference, and stand persistence of forage grasses sown September 10, 2021, in a horse grazing tolerance study at Lexington, Kentucky.

Variety	Species	Fescue Endophyte Status[1]	Seedling Vigor[2] Oct 5, 2021	Grazing Preference[3]				Percent Stand								
				2022	2023	2024	2025	2021	2022		2023		2024		2025	
				May 6	Jun 2	Jun 7	May 29	Oct 5	Mar 24	Oct 24	Mar 21	Oct 18	Mar 25	Oct 9	Mar 19	Oct 20
Commercial Varieties-Available for Farm Use																
Cajun II	tall fescue	free	3.7	1.0	1.0	1.5	1.0	100	100	100	100	100	100	100	100	100*
Jesup MaxQII	tall fescue	novel	3.2	1.2	1.0	1.8	1.0	100	100	100	100	100	100	100	100	100*
KY31+	tall fescue	toxic	3.8	1.2	1.2	2.8	1.0	100	100	100	100	100	100	100	100	100*
KY31-	tall fescue	free	4.0	1.2	1.0	1.7	0.9	100	100	100	100	100	100	100	100	100*
Lacefield MaxQII	tall fescue	novel	4.0	1.3	1.0	2.0	1.0	100	100	100	100	100	100	100	100	100*
SS0705TFSL	tall fescue	free	3.8	1.3	1.2	1.5	1.0	100	100	100	100	100	100	100	100	100*
Texoma MaxQII	tall fescue	novel	3.5	1.0	1.0	1.8	1.0	100	100	100	100	100	100	100	100	100*
Prairie	orchardgrass	–	3.8	3.3	3.7	3.5	3.0	100	100	98	97	96	93	86	84	60
SS0708OGDT	orchardgrass	–	3.8	3.3	3.5	4.5	2.5	100	100	100	99	98	97	86	84	58
Persist	orchardgrass	–	4.0	4.2	3.7	5.0	2.7	100	100	100	99	96	93	81	82	54
Prodigy	orchardgrass	–	4.0	4.8	4.7	5.7	4.5	100	100	98	92	86	84	69	68	50
Remington	perennial ryegrass	–	4.8	6.7	7.5	6.3	6.8	100	100	100	99	99	97	83	77	43
Profit	orchardgrass	–	4.0	4.8	5.5	5.8	4.3	100	100	100	98	92	79	58	57	37
PayDay	perennial ryegrass	–	4.6	6.2	6.0	6.7	7.3	100	100	99	84	82	70	55	42	35
TetragainSLT	perennial ryegrass	–	4.8	5.0	5.0	6.2	6.7	100	100	94	74	73	62	47	37	32
Linn	perennial ryegrass	–	4.9	4.0	4.0	4.3	6.7	100	100	86	65	66	52	33	42	23
Experimental Varieties																
KY31-	tall fescue	free	4.0	1.2	1.0	1.7	0.9	100	100	100	100	100	100	100	100	100*
Mean			4.0	3.2	3.2	3.8	3.2	100	100	98	94	93	89	81	79	68
CV,%			9.3	24.4	45.9	46.6	44.8	0	0	5	10	11	15	20	20	26
LSD,0.05			0.4	0.9	1.7	2.0	1.7	0	0	5	11	12	15	18	18	20

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but are not toxic to cattle and horses.
[2] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[3] Preference score based on a scale of 1 to 9 with 9 indicating all forage was grazed. Grazing time before rating: 2022-22 days, 2023-35 days, 2024-35days, 2025-44 days.
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 3. Seedling vigor, grazing preference, and stand persistence of forage grasses sown September 9, 2022, in a horse grazing tolerance study at Lexington, Kentucky.

Variety	Species	Fescue Endophyte Status[1]	Seedling Vigor[2] Sep 28, 2022	Grazing Preference[3]			Percent Stand						
				2023	2024	2025	2022	2023		2024		2025	
				Jun 2	Jun 7	May 29	Sep 28	Mar 21	Oct 18	Mar 25	Oct 9	Mar 20	Oct 20
Commercial Varieties-Available for Farm Use													
Estancia Arkshield	tall fescue	novel	4.4	1.0	2.3	1.3	100	100	100	100	100	100	100*
Jesup MaxQII	tall fescue	novel	4.4	1.2	1.7	1.0	100	100	100	100	100	100	100*
KY31+	tall fescue	toxic	4.3	1.5	2.0	1.0	100	100	100	100	100	100	100*
SS0705TFSL	tall fescue	free	4.7	1.2	1.8	1.0	100	100	100	100	100	100	100*
Texoma MaxQII	tall fescue	novel	4.3	1.0	1.8	1.2	100	100	100	100	100	100	100*
Lacefield MaxQII	tall fescue	novel	4.8	1.0	2.2	1.3	100	100	100	100	93	93	98*
Persist	orchardgrass	–	4.9	2.8	3.3	1.2	100	100	100	100	96	93	80
Prairie	orchardgrass	–	4.6	3.0	3.8	2.2	100	100	98	97	86	84	67
Persist II	orchardgrass	–	4.3	2.7	3.5	2.0	100	100	100	100	96	94	66
SS0708OGDT	orchardgrass	–	4.5	3.0	4.3	2.2	100	100	98	98	85	84	63
Profit	orchardgrass	–	4.7	3.3	5.3	3.8	100	100	100	99	81	78	50
Linn	perennial ryegrass	–	5.0	1.7	3.2	2.8	100	100	96	91	82	65	32
PayDay	perennial ryegrass	–	5.0	5.2	7.2	3.5	100	100	90	91	70	67	18
TetraMag	perennial ryegrass	–	5.0	3.5	6.0	3.5	100	100	93	92	60	43	18
Experimental Varieties													
KY31-	tall fescue	free	4.3	1.3	2.2	1.3	100	100	100	100	100	100	100*
KYFA9732/AR584	tall fescue	novel	4.6	1.0	2.5	1.0	100	100	100	100	100	100	98*
Mean			4.6	2.1	3.3	1.9	100	100	98	98	91	88	74
CV,%			5.7	39.4	39.5	67.2	0	0	5	4	13	13	18
LSD,0.05			0.3	1.0	1.5	1.5	0	0	6	4	14	13	15

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but are not toxic to cattle and horses.
[2] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[3] Preference score based on a scale of 1 to 9 with 9 indicating all forage was grazed. Grazing time before rating: 2023-35 days, 2024-35 days, 2025-44 days.
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 4. Seedling vigor, grazing preference, and stand persistence of forage grasses sown August 31, 2023, in a horse grazing tolerance study at Lexington, Kentucky.

Variety	Species	Fescue Endophyte Status[1]	Seedling Vigor[2] Oct 19, 2023	Grazing Preference[3]		Percent Stand				
				2024	2025	2023	2024		2025	
				Jun 7	May 29	Oct 19	Mar 14	Oct 9	Mar 19	Oct 20
Commercial Varieties-Available for Farm Use										
Lacefield MaxQII	tall fescue	novel	3.0	2.5	1.0	99	100	99	99	98*
Estancia Arkshield	tall fescue	novel	1.7	2.3	1.0	95	97	97	97	97*
KY31+	tall fescue	toxic	2.3	2.3	1.0	94	97	98	98	97*
Palatine	tall fescue	free	2.0	1.8	1.0	97	97	97	97	97*
Jesup MaxQII	tall fescue	novel	1.8	3.0	1.0	93	96	97	97	97*
SS0708OGDT	orchardgrass	–	2.3	4.3	2.7	96	96	97	97	91*
Cajun II	tall fescue	free	1.8	1.5	1.0	97	98	97	98	90*
Devour	orchardgrass	–	2.4	5.0	5.3	97	97	97	96	90*
SS0705TFSL	tall fescue	free	2.1	3.7	1.0	96	97	96	96	83*
Remington NEA2	perennial ryegrass	–	2.8	5.2	8.2	100	100	99	97	80*
BenchmarkPlus	orchardgrass	–	3.0	3.7	2.3	99	99	99	98	80*
Tekapo	orchardgrass	–	2.5	4.3	5.3	99	100	100	99	79*
Persist II	orchardgrass	–	2.5	3.2	1.7	98	99	99	99	77*
PayDay	perennial ryegrass	–	3.7	5.3	7.8	99	99	92	91	64
Barvette	Kentucky bluegrass	–	1.0	6.2	4.8	96	96	97	97	63
TetraSweet	perennial ryegrass	–	4.3	4.8	6.7	99	99	97	95	48
Volt	Kentucky bluegrass	–	1.0	7.3	5.0	94	95	83	74	46
SugarCrest	festulolium	–	4.6	4.0	7.2	99	99	92	91	42
Farenheit 90	Kentucky bluegrass	–	1.0	7.0	4.2	91	95	90	73	40
365ss	Kentucky bluegrass	–	1.0	7.5	4.8	90	94	93	79	38
Bolt	Kentucky bluegrass	–	1.0	7.0	6.0	94	96	95	85	38
Barduke	Kentucky bluegrass	–	1.2	6.8	3.8	83	90	89	84	38
SpringGreen	festulolium	–	4.4	4.5	6.3	99	99	63	56	35
Ginger	Kentucky bluegrass	–	1.3	7.2	4.3	89	95	93	86	32
Experimental Varieties										
KYFA9611	tall fescue	free	1.9	1.5	1.0	96	98	98	98	98*
KYFA1014	tall fescue	free	1.9	3.3	1.0	93	95	96	96	88*
KY31-	tall fescue	free	2.3	2.8	1.0	98	98	98	98	86*
GPRT14021 AR1	perennial ryegrass	–	3.2	3.8	7.5	99	100	95	94	79*
Mean			2.3	4.4	3.7	96	97	94	92	71
CV,%			22.1	35.9	35.6	5	2	6	11	26
LSD,0.05			0.6	1.8	1.5	5	3	7	12	22

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but are not toxic to cattle and horses.
[2] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[3] Preference score based on a scale of 1 to 9 with 9 indicating all forage was grazed. Grazing time before rating: 2024-35 days, 2025-44 days.
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 5. Seedling vigor, grazing preference, and stand persistence of forage grasses sown September 19, 2024, in a horse grazing tolerance study at Lexington, Kentucky.

Variety	Species	Fescue Endophyte Status[1]	Seedling Vigor[2] Oct 9, 2024	Grazing Preference[3] May 29, 2025	Percent Stand		
					2024	2025	
					Oct 9	Mar 20	Oct 20
Commercial Varieties-Available for Farm Use							
Estancia Arkshield	tall fescue	novel	4.3	1.7	100	100	100*
Jesup MaxQII	tall fescue	novel	3.6	1.8	100	100	100*
Lacefield MaxQII	tall fescue	novel	4.6	1.7	100	100	100*
Martin2 Protek	tall fescue	novel	4.3	1.8	100	100	100*
Texoma MaxQII	tall fescue	novel	3.7	1.7	100	100	100*
Tower Protek	tall fescue	novel	3.7	2.3	100	100	100*
Triumphant Protek	tall fescue	novel	4.6	1.7	100	100	100*
Profit	orchardgrass	–	3.8	2.8	100	100	93
SS0708OGDT	orchardgrass	–	3.7	3.8	100	100	90
Persist II	orchardgrass	–	4.1	3.8	100	100	88
Power	perennial ryegrass	–	4.8	5.0	100	100	88
Remington NEA2	perennial ryegrass	–	4.3	6.0	100	100	86
Persist	orchardgrass	–	4.3	3.3	100	100	85
Ginger	Kentucky bluegrass	–	2.5	6.3	100	100	43
Fahrenheit 90	Kentucky bluegrass	–	2.3	6.7	100	100	40
Experimental Varieties							
KYFA0502	tall fescue	free	3.3	1.7	100	100	100*
KYFA1014	tall fescue	free	4.3	1.5	100	100	100*
KYFA9611GT	tall fescue	free	4.3	1.8	100	100	100*
Mean			3.9	3.1	100	100	90
CV,%			14.6	32.3	0	0	7
LSD,0.05			0.7	1.1	0	0	7

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but are not toxic to cattle and horses.
[2] Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
[3] Preference score based on a scale of 1 to 9 with 9 indicating all forage was grazed. Grazing time before rating: 2025-44 days.
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 6. Proprietors of forage grasses in current horse grazing trials in Kentucky.

Variety	Species	Endophyte Status[1]	Proprietor/KY Distributor
Commercial Varieties-Available for Farm Use			
Barduke	Kentucky bluegrass		Barenbrug USA
Barvette	Kentucky bluegrass		Barenbrug USA
Benchmark Plus	orchardgrass		Southern States
Bolt	Kentucky bluegrass		Mountain View Seeds
Cajun II	tall fescue	free	Smith Seed Services
Devour	orchardgrass		Mountain View Seeds
Estancia Arkshield	tall fescue	novel	Mountain View Seeds
Fahrenheit 90	Kentucky bluegrass		Mountain View Seeds
Ginger	Kentucky bluegrass		Proseeds Marketing
Jesup MaxQII	tall fescue	novel	Pennington Seed
KY 31+	tall fescue	toxic	Public
Lacefield MaxQII	tall fescue	novel	Pennington Seed
Linn (certified)	perennial ryegrass		Public
Martin2 Protek	tall fescue	novel	DLF Pickseed
Palatine	tall fescue	free	Mountain View Seeds
PayDay	perennial ryegrass		Mountain View Seeds
Persist	orchardgrass		Smith Seed Services
Persist II	orchardgrass		Smith Seed Services
Power	perennial ryegrass		Ampac Seed
Prairie	orchardgrass		Turner Seed
Prodigy	orchardgrass		Caudill Seed
Profit	orchardgrass		Ampac Seed
Remington	perennial ryegrass		Barenbrug USA
Remington PLUS NEA2	perennial ryegrass	novel	Barenbrug USA
SpringGreen	festulolium		Turf-Seed
SS-0705TFSL	tall fescue	free	Southern States
SS-0708OGDT	orchardgrass		Southern States
Sugarcrest	festulolium		Mountain View Seeds
Tekapo	orchardgrass		Ampac Seed
TetragainSLT	perennial ryegrass		Smith Seed Services
TetraSweet	perennial ryegrass		Mountain View Seeds
TetraMag	perennial ryegrass		Mountain View Seeds
Texoma MaxQII	tall fescue	novel	Pennington Seed
Tower Protek	tall fescue	novel	DLF Pickseed
Triumphant Protek	tall fescue	novel	DLF Pickseed
Volt	Kentucky bluegrass		Mountain View Seeds
365ss	Kentucky bluegrass		Mountain View Seeds
Experimental Varieties[2]			
GPRT14021 AR1	perennial ryegrass		Mountain View Seeds
KY 31-	tall fescue	free	KY Agric. Exp. Station
KYFA0502	tall fescue	free	KY Agric. Exp. Station
KYFA1014	tall fescue	free	KY Agric. Exp. Station
KYFA9611	tall fescue	free	KY Agric. Exp. Station
KYFA9611GT	tall fescue	free	KY Agric. Exp. Station
KYFA9732/AR584	tall fescue	novel	KY Agric. Exp. Station

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle. Orchardgrass and Kentucky bluegrass do not contain an endophyte and forage type perennial ryegrass varieties do not contain a toxic endophyte.
[2] Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 7. Summary of 2002-2025 Kentucky tall fescue horse grazing tolerance trials with three or more years of data in Lexington (stand persistence shown as a percent of the stand rating of the endophyte free variety KY 31-).

Variety	Endophyte Status[1]	Proprietor/KY Distributor	2002[2,3]	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Mean[4] (#trials)
			4-yr[5]	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4yr	3yr	
BarOptima PLUS E34[6]	novel	Barenbrug USA						107			101	101	95	104	99	99	101	100						101(9)
Cajun II	free	Smith Seed Services												96			101				100	100		99(4)
Cowgirl	free	Rose Agri-Seed							105				99											102(2)
Estancia Arkshield	novel	Mountain View Seeds																			100		100	100(2)
Jesup MaxQ	novel	Pennington Seed	98			78			104	97	100	101	97	105	98	100	99	101	99					98(13)
Jesup MaxQII	novel	Pennington Seed																		100	100	100	100	100(4)
KY31+	toxic	KY Agri. Exp.Sta.				102	109	120	107	101	101	101	99	105	99	100	101	100	99	101	100	100	100	103(18)
KY31-	free	KY Agri. Exp.Sta.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(21)
Lacefield MaxQII	novel	Pennington Seed					105	110		98				104		100	100	100	98	100	100	100	98	101(12)
Seine	free	Seed Research of Oregon			135																			–
Select	free	Southern States	109	94	99	73	104	76	108	98	100	101	98	98	97	100								97(14)
SS0705TFSL	free	Southern States													98	100	100	101	99	101	100	100	100	100(9)
Stockman	free	Seed Research of Oregon			125																			–
Texoma MaxQII	novel	Pennington Seed																		97		100	100	–

[1] Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.
[2] Year trial was established.
[3] Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial plantedin the fall of 2016 was grazed four years so the final report would be "2020 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[4] Mean only presented when respective variety was included in two or more trials.
[5] Number of years of data.
[6] BarOptima PLUS E34 is not recommended for pregnant mares because it produces low levels of the alkaloid ergovaline.

Table 8. Summary of 1999-2025 Kentucky orchardgrass horse grazing tolerance trials with three or more years of data in Lexington (stand persistence shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	1999[1,2]	2000	2001	2002	2005[3]	2006	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Mean[4] (#trials)
		3-yr[5]	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4yr	3yr	
Albert	Univ. of Wisconsin			95																		–
Ambrosia	Amer.Grass Seed Prod.						61															–
Benchmark	Southern States	104			85																	95(2)
Benchmark Plus	Southern States				111	157	139	111	114	121	121	137	105									120(8)
Crown Royale	Grassland Oregon			95																		–
Crown Royale Plus	Grassland Oregon				97																	–
Elise	Pure Seed										87											–
Haymate	Southern States	96	85		97																	93(3)
Persist	Smith Seed Services					114		103	101	92	112	146	95	123	109	116	138	116	118	102	123	114(15)
Persist II	Smith Seed Services																				109	–
Potomac	Public				117											65						91(2)
Prairie	Turner Seed			100										92	95	112	91	92	86	113	103	98(9)
Prodigy	Caudill Seed											54					73	91		94		78(4)
Profit	Ampac Seed							93	86		92		108						98	81	77	91(7)
SS-0708OGDT	Southern States									104			92	77	95	107	99			109	97	98(8)
Tekapo	Ampac Seed	101	115		93	30		92	100	83	87	63		108								94(9)

[1] Year trial was established.
[2] Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in stand persistence between varieties. To find actual persistence ratings, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in the fall of 2016 was grazed four years so the final report would be "2020 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[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 9. Summary of 2000-2025 Kentucky perennial ryegrass and festulolium(FL) horse grazing tolerance trials with three or more years of data in Lexington (stand persistence shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor/KY Distributor	2000[1,2]	2004	2007	2009	2010	2011	2012	2014	2015	2019	2020	2021	2022	Mean[3] (#trials)
		4-yr[4]	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	4-yr	3-yr	
Aries	Ampac Seed		55												–
Duo(FL)	Ampac Seed	96					87			82					88(3)
Granddaddy	Smith Seed Services		145	100	83	96		75	80						97(6)
Linn (certified)	Public										90	42	69	141	86(4)
Mara	Barenbrug USA	104													–
PayDay	Mountain View Seeds										74		105	79	86(3)
Power	Ampac Seed				118	103			120	136		52			106(5)
Quartet	Ampac Seed														–
Remington	Barenbrug USA										111	205	129		156(3)
Remington PLUS NEA2[5]	Barenbrug USA										125				–
Spring Green(FL)	Turf-Seed						113	140		82					112(3)
TetraGain SLT	Pure Seed Testing							84					96		85(2)
TetraMag	Mountain View Seeds													79	–

[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 the fall of 2016 was grazed four years so the final report would be "2020 Cool-Season Grass Horse Grazing Tolerance Report" archived in the UK Forage website (https://forages.ca.uky.edu).
[3] Mean only presented when respective variety was included in two or more trials.
[4] Number of years of data.
[5] Remington PLUS NEA2 contains a nontoxic (novel) endophyte.

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