



2022 Alfalfa and Red and White Clover Grazing Tolerance Report

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Introduction

Alfalfa (*Medicago sativa*) is 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. Recent emphasis on its use as a grazing crop and the release of grazing-tolerant varieties have raised the following question: Do varieties differ in tolerance to grazing? To answer this question, we have chosen to use the standard tolerance test recommended by the North American Alfalfa Improvement Conference. This test uses continual heavy grazing to sort out differences in grazing tolerance in a relatively short period of time.

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, soil improvement, and wildlife habitat. This species is adapted to a wide range of climatic and soil conditions. Stands of improved varieties are generally productive for two and a half 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, high yield, and animal acceptance.

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. Three types of white clover grow in Kentucky: Dutch, intermedi-

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2019, 2020, 2021, and 2022.

	2019				2020				2021				2022 ²			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	33	+2	4.11	+1.25	40	+9	3.72	+0.86	34	+3	4.51	+1.65	29	-2	4.93	+2.07
FEB	42	+7	7.64	+4.43	38	+3	5.14	+1.93	31	-4	4.60	+1.39	38	+3	7.69	+4.48
MAR	43	-1	3.49	-0.91	51	+7	3.79	-0.61	50	+6	5.12	+0.72	49	+5	4.27	-0.13
APR	54	+4	4.76	+0.88	52	-3	4.92	+1.04	54	-1	2.72	-1.16	55	0	3.71	-0.17
MAY	69	+5	4.49	+0.02	62	-2	5.69	+1.22	62	-2	4.34	-0.13	69	+5	3.84	-0.63
JUN	73	+1	6.13	+2.47	72	0	2.56	-1.10	73	+1	6.26	+2.60	76	+4	2.10	-1.56
JUL	79	+3	3.30	-1.70	79	+3	3.23	-1.77	75	-1	5.90	+0.90	80	+4	6.46	+1.46
AUG	77	+2	2.42	-1.51	75	0	3.41	-0.52	76	+1	6.16	+2.23	77	+2	4.27	+0.34
SEP	77	+9	0.18	-3.02	68	0	4.43	+0.83	69	+1	3.03	-0.17	70	+2	1.50	-1.70
OCT	61	+4	7.55	+5.58	57	0	4.98	+2.41	62	+5	4.64	+2.10	57	0	0.96	-1.61
NOV	41	-4	5.39	+2.00	49	+4	2.18	-1.21	43	-2	2.13	-1.26				
DEC	43	+7	5.74	+1.76	36	0	2.27	-1.71	47	+11	4.41	+0.43				
Total			55.20	+10.65			45.92	+1.37			53.85	+9.30			39.73	+2.55

¹DEP is departure from the long-term average.

²2022 data is for ten months through October.

Table 2. Stand persistence of alfalfa varieties sown April 3, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.¹

Variety	Percent Stand					
	2020		2021		2022	
	Jun 5	Sep 30	Mar 29	Oct 7	Mar 24	Oct 24
Commercial Varieties-Available for Farm Use						
Alfagraze	80	81	81	17	12	8*
Ameristand 403TPlus	80	81	83	20	13	7*
Alfabar	83	80	81	10	7	4*
Saranac AR (certified)	75	77	79	6	3	2
Mean	80	80	81	13	9	5
CV,%	18	18	12	37	57	61
LSD,0.05	18	18	12	7	7	4

¹This study was originally seeded September 5, 2019, but entire stand was killed by sclerotinia, therefore it was reseeded April 3, 2020.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 3. Stand persistence of alfalfa varieties sown September 8, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 2, 2020	Percent Stand				
		2020	2021		2022	
		Oct 2	Jul 2	Oct 7	Mar 24	Fall ²
Commercial Varieties-Available for Farm Use						
Alfabar	4.3	100	87	53	28*	—
Ameristand 403TPlus	4.8	100	85	60	28*	—
Alfagraze	4.2	100	73	52	25*	—
Saranac AR (certified)	4.8	100	76	48	23*	—
Experimental Varieties						
AFX164047	4.8	100	76	62	33*	—
Mean	4.6	100	79	55	27	—
CV,%	7.0	0	14	27	35	—
LSD,0.05	0.4	0	13	18	12	—

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 4. Seedling vigor and stand persistence of alfalfa varieties sown September 8, 2021, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 5, 2021	Percent Stand		
		2021		2022
		Oct 5	Mar 24	Oct 24
Commercial Varieties-Available for Farm Use				
Ameristand 403TPlus	4.6	100	100	100*
GA409	4.8	100	100	100*
Rugged	4.8	100	100	100*
Rugged II	4.5	100	100	100*
Alfagraze	4.3	100	100	99*
AFX469	4.4	100	100	99*
Mean	4.5	100	100	100
CV,%	7.7	0	0	1
LSD,0.05	0.4	0	0	2

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
^{*}Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 5. Stand persistence of red clover varieties sown April 3, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.¹

Variety	Percent Stand					
	2020		2021		2022	
	Jun 5	Sep 30	Mar 29	Oct 7	Mar 24	Fall ²
Commercial Varieties-Available for Farm Use						
Freedom!	85	81	78	21	12*	–
SS0303RCG	85	84	79	18	10*	–
Kenland (certified)	83	71	79	13	9*	–
GA9908	80	80	79	18	8*	–
Gallant	73	70	70	13	7*	–
Barduro	86	82	73	11	4	–
Experimental Varieties						
BARTP9	90	90	90	22	12*	–
BARTP11	83	84	80	13	4	–
Mean	83	80	79	16	8	
CV,% ³	14	16	18	49	66	
LSD,0.05	14	15	16	9	6	

¹This study was originally seeded September 5, 2019, but entire stand was killed by sclerotinia, therefore it was reseeded April 3, 2020.
²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.
³High CVs during the later years of this test reflect increasing variability between plots as the stands thin.
^{*}Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 6. Seedling vigor and stand persistence of red clover varieties sown September 8, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 2, 2020	Percent Stand				
		2020	2021		2022	
		Oct 2	Jul 6	Oct 7	Mar 24	Fall ²
Commercial Varieties-Available for Farm Use						
SS0303RCG	4.4	100	28	33	28*	–
Freedom!	4.6	100	39	34	27*	–
Kenland (certified)	4.3	100	33	32	24*	–
GA9908	4.1	100	10	13	11	–
Barduro	4.9	100	10	7	6	–
Experimental Varieties						
20-LA-RC-1	4.6	100	32	32	21*	–
20-LA-RC-2	4.6	100	26	28	20*	–
BARTP9	4.5	100	16	17	19*	–
BARTP11	4.5	100	23	22	16*	–
20-AB-RC-3	3.8	100	18	19	14	–
CW30091	3.3	94	9	7	6	–
Mean	4.3	99	22	22	17	
CV,% ³	8.6	1	50	49	64	
LSD,0.05	0.4	1	13	13	13	

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.
³High CVs during the later years of this test reflect increasing variability between plots as the stands thin.
^{*}Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 7. Seedling vigor and stand persistence of red clover varieties sown September 8, 2021, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 5, 2021	Percent Stand		
		2021		2022
		Oct 5	Mar 24	Oct 24
Commercial Varieties-Available for Farm Use				
Gallant	3.6	100	100	87*
Blaze	3.8	100	99	85*
SS0303RCG	4.3	100	100	84*
Freedom!	4.3	100	100	76*
Kenland	4.6	100	100	53
GA9908	3.8	100	100	53
Barduro	4.0	100	100	41
Experimental Varieties				
20-LA-RC-2	4.5	100	100	79*
20AB-RC-3	3.8	100	100	78*
20-LA-RC-1	3.9	100	100	76*
BARTSRWR	3.8	100	100	70
CW30091	3.0	96	98	74*
PSTCLVR20825	3.3	91	91	47
PSTCLVR981211	3.0	94	95	42
Mean	3.8	97	99	67
CV,%	11.9	4	4	21
LSD,0.05	0.5	5	5	16

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.
^{*}Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

ate, and ladino. Dutch white clover, sometimes called "common," naturally occurs in many Kentucky pastures and even lawns. It is generally long lived and reseeds readily, but its small leaves and low growth habit result in low forage yield. The intermediate type is a cross between ladino and Dutch white clover and has been developed to give higher yields than the Dutch type and to persist better than the ladino type under pasture or frequent grazing conditions. Ladino white clover has larger leaves and taller growth than the intermediate and Dutch types and is the highest yielding of the three white clover types.

This report summarizes research on the grazing tolerance of alfalfa and clover varieties when subjected to continual heavy grazing pressure during the grazing season. A summary of all alfalfa varieties tested in Kentucky during the last 20 years and information about distributors, fall dormancy ratings, and disease resistance is included at the end of this report. The UK Forage Extension website (<https://forages.ca.uky.edu>) contains past versions of all forage variety testing reports from Kentucky and surrounding states and a large number of other forage publications.

Important Selection Considerations

Local adaptation and seasonal yield. The variety should be adapted to Kentucky as indicated by good winter survival and good performance across years and locations in replicated yield and grazing trials, such as those presented in this publication. Choose high-yielding, persistent varieties and varieties that are productive during the desired season of use. Refer to the 2022 Alfalfa Report (PR-817) and the 2022 Red and White Clover Report (PR-816), (or previous years if needed) for yield 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. Other information on the label will include the test date (which must be within

Table 8. Seedling vigor and stand persistence of white clover varieties sown September 5, 2018, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Sep 28, 2018	Percent Stand									
		2018		2019		2020		2021		2022	
		Sep 28	Mar 28	Nov 5	Mar 25	Oct 13	Mar 29	Oct 7	Mar 24	Fall ²	
Commercial Varieties-Available for Farm Use											
Will	3.9	93	88	87	80	78	75	77	65*	–	
Patriot	2.8	79	62	70	60	68	68	78	53*	–	
Alice	3.8	93	64	79	66	62	62	67	47	–	
Kopu II	3.5	93	55	63	47	58	58	70	47	–	
RegalGraze	4.1	96	89	78	53	62	63	72	47	–	
Durana	2.5	84	67	75	55	52	47	55	38	–	
Mean	3.4	90	71	75	60	63	62	70	49	–	
CV,%	17.1	9	15	20	23	22	19	15	26	–	
LSD,0.05	0.7	10	15	18	17	16	14	13	15	–	

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

the previous nine months), the 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. For pre-inoculated seed, make sure to plant by the expiration date for the rhizobia inoculum on the seed tag.

Description of the Tests

Variety tests for grazing tolerance were established in Lexington in the spring of 2020 (sclerotinia killed the trial seeded in the fall of 2019) and in the fall of 2018, 2020, and 2021. The soils at this location are well-drained silt loams and are well-suited to alfalfa and clover. Plots were 5 feet by 20 feet in a randomized complete block design, with each variety replicated six times. In these tests, alfalfa (20 pounds per acre), red clover (12 pounds per acre), and white clover (3 pounds per acre) were planted into a prepared seedbed using a disk drill. All alfalfa seed lots were treated with metalaxyl fungicide and inoculated if not supplied pre-treated with these treatments. The clover seed also was inoculated prior to planting. With coated seed, the seeding rate was adjusted to account for the weight of any seed coating. Plots were grazed continually beginning the first spring after seeding. Grazing pressure was maintained to keep plant height to less than three inches. In general, plots were grazed from mid-May until mid-September. For the spring seeded trial, grazing started in early July. 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. Ratings were made in the spring prior to grazing to check on 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. Pests (weeds and insects) were controlled so they would not limit yield or persistence. Fertilizers (lime, P, K, and boron) were applied based on University of Kentucky soil test recommendations. In each alfalfa trial, Alfagraze was the grazing-tolerant check variety.

Results and Discussion

Weather data for Lexington is presented in Table 1.

Data on percent stand are presented in tables 2-11. Statistical analyses were performed on all alfalfa yield data (including experimentals) to determine whether the apparent differences are due to variety or simply to chance. To determine whether

Table 9. Stand persistence of white clover varieties sown April 3, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.¹

Variety	Percent Stand					
	2020		2021		2022	
	Jun 5	Sep 30	Mar 29	Oct 7	Mar 24	Fall ²
Commercial Varieties-Available for Farm Use						
Patriot	20	68	91	89	87*	–
Will	38	82	95	89	86*	–
Kopu II	33	78	88	82	78*	–
Durana	30	81	93	86	77*	–
Renovation	38	88	93	84	72	–
Alice	43	78	93	84	67	–
RegalGraze	39	74	91	76	63	–
Neches	45	83	90	83	61	–
Mean	36	79	91	84	74	–
CV,%	47	11	6	12	16	–
LSD,0.05	20	11	6	12	14	–

¹This study was originally seeded September 5, 2019, but entire stand was killed by sclerotinia, therefore it was reseeded April 3, 2020.

²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 10. Seedling vigor and stand persistence of white clover varieties sown September 8, 2020, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 2, 2020	Percent Stand				
		2020		2021		2022
		Oct 2	Jul 6	Oct 7	Mar 24	Fall ²
Commercial Varieties-Available for Farm Use						
Will	4.7	100	98	99	98*	–
Dusi	4.3	100	93	97	96*	–
Patriot	3.6	95	91	96	95*	–
Durana	3.9	97	83	96	93*	–
RegalGraze	4.2	100	95	95	93*	–
Alice	4.2	100	92	97	93*	–
Kakariki	4.5	99	86	93	91	–
Neches	4.4	100	83	94	90	–
Cresendo	4.3	100	93	94	89	–
Experimental Varieties						
CW9501	3.6	84	91	95	91	–
Mean	4.2	97	91	96	93	–
CV,%	10.2	7	7	4	5	–
LSD,0.05	0.5	8	8	4	6	–

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

²Due to heavy grazing and lack of fall rainfall, there was not enough green growth to get a fall stand rating.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

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), which is a measure of the variability of the data, is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

Table 12, 13 and 14 summarizes information about distributors, fall dormancy ratings, and disease resistance information for all varieties included in current tests. You can find more detailed disease and insect resistance ratings for alfalfa at www.alfalfa.org/pdf/2023_Alfalfa_Variety_Leaflet.pdf.

How to Interpret the Summary Table

Table 15 is a summary of stand persistence data of commercial varieties of alfalfa that have been entered in the Kentucky trials from 2000 to 2022. The data for each trial are listed as a percentage of the grazing-tolerant variety Alfagraze. In other words, in each trial the rating for Alfagraze is set to 100—varieties with table values over 100 persisted better than Alfagraze and varieties with values less than 100 persisted less than Alfagraze. Table 16 is a summary of stand persistence data from 2002 to 2022 of commercial white clover varieties that have been entered in the Kentucky trials. Due to minimal stands remaining after two years of grazing, a summary table for red clover is not included in this report but information on three-year stand survival of red clover can be obtained from the 2022 Red and White Clover Report (PR-816) and previous years on the University of Kentucky Forage website. The data are listed as a percentage of the mean of the commercial varieties entered in each specific trial. In other words, the mean value for each trial is set at 100 percent—varieties with percentages over 100 persisted better than average, and varieties with percentages less than 100 persisted less than average. Direct statistical comparisons of varieties cannot be made using the summary tables 15 and 16, 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 stable performance, while others may have performed well in wet years or on particular soil types. These details may influence variety choice, and more information can be found in past yearly reports. See footnote in tables 15 and 16 to identify specific yearly reports which contain more detailed persistence information.

Summary

Measurements taken after multiple years of grazing in these trials indicate that alfalfa varieties have been developed that exhibit improved tolerance to heavy grazing pressure compared to standard hay-type varieties. The grazing management imposed in these trials included continuous stocking from the initiation of grazing in spring until mid-September, when grazing was terminated for the season to allow stands to acclimate to winter. Heavy grazing pressure was used purposely in these trials to better differentiate among varieties for relative grazing tolerance. Research has shown that abusive grazing tests are a good way to sort out differences in grazing tolerance between varieties in a relatively short period of time. Recommended rotational grazing management would improve alfalfa forage productivity and stand persistence.

Table 11. Seedling vigor and stand persistence of white clover varieties sown September 8, 2021, in a cattle-grazing tolerance study at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 5, 2021	Percent Stand		
		2021	2022	
		Oct 5	Mar 24	Oct 24
Commercial Varieties-Available for Farm Use				
Will	3.7	99	100	99*
Durana	3.1	98	99	99*
Patriot	3.0	97	99	98*
Alice	3.4	100	100	96*
RegalGraze	4.1	100	100	96*
Stamina	3.1	99	100	96*
Kakariki	3.1	99	99	95
Experimental Varieties				
GATR21024D	2.9	99	99	99*
BARTSRWR	4.9	100	100	97*
CW9501	3.3	97	98	96*
Mean	3.5	99	99	97
CV,%	10.4	2	1	2
LSD,0.05	0.4	2	1	3

¹Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

The information in this report should be used in conjunction with other yield, pest resistance, and adaptation information to select the best alfalfa and clover varieties for each situation. Bloat prevention practices are recommended when grazing alfalfa, especially pure stands.

Good management for maximum life from grazing alfalfa and clover would include:

- Allowing alfalfa and clover to become completely established before grazing
- Using rotational grazing where animals harvest available forage in seven days or less, followed by resting for 28 days before regrowing; less rest time is required for white clover
- Adding needed fertilizer and lime
- Removing grazing livestock from alfalfa and red clover fields from mid-September until November 1 to replenish root reserves for winter survival

For further information about grazing alfalfa management, refer to the following College of Agriculture publications, available at the local county Extension office or in the publications section of the UK Forage website (<https://forages.ca.uky.edu>).

- Grazing Alfalfa (<https://www.alfalfa.org/pdf/GrazingAlfalfaFinal.pdf>)
- Managing Legume Induced Bloat in Cattle (ID-186)
- Extending Grazing and Reducing Stored Feed Needs (AGR-199)
- Renovating Hay and Pastures Fields (AGR-26)
- Weed Control Strategies for Alfalfa and Other Forage Legume Crops (AGR-148)
- Rotational Grazing (ID-143)
- Grazing Red Clover in Kentucky (AGR-33)
- Grazing White Clover in Kentucky (AGR-195)

Authors

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Table 12. Characterization and proprietors of alfalfa varieties in current trials in Kentucky.

Variety	Proprietor/KY Distributor	Variety Characteristics ¹						
		Disease Resistance ²						
		FD ³	BW	FW	AN	PRR	APH1	APH2
Commercial Varieties-Available for Farm Use								
AFX 469	Alforex Seeds	4	HR	HR	HR	HR	HR	R
Alfabar	Barunbrug USA	3	HR	HR	HR	HR	HR/R	–
Alfagraze	America's Alfalfa	2	MR	R	MR	LR	-	–
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR	R
GA409	Preferred Alfalfa Genetics	4	HR	HR	HR	HR	HR	HR
Rugged	Alforex Seeds	3	HR	HR	HR	HR	HR	MR
Rugged II	Alforex Seeds	3	HR	HR	HR	HR	HR	R
Saranac AR (certified)	Public	4	MR	R	HR	LR	–	–
Experimental Varieties⁴								
AFX164047	Alforex Seeds	4	HR	HR	HR	HR	HR	–

¹Variety characteristics: FD=fall dormancy, BW=bacterial wilt, FW=fusarium wilt, AN=anthracnose, PRR=phytophthora root rot, APH=aphanomyces root rot, race 1 and race 2.

²Disease resistance: S=susceptible, LR=low resistance, MR=medium resistance, R=resistance, HR=high resistance (more detailed disease and insect resistance ratings at www.alfalfa.org/pdf/2022_Alfalfa_Variety_Leaflet.pdf).

³Fall dormancy: 2=Vernal, 3=Ranger, 4=Saranac, 5=DuPuits.

⁴Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 13. Proprietors of red clover varieties in current grazing trials in Kentucky.

Variety	Proprietor/KY Distributor
Commercial Varieties-Available for Farm Use	
Barduro	Barenbrug USA
Blaze	Mountain View Seeds
Freedom!	Barenbrug USA
Gallant	Turner Seed
GA9908	Smith Seed Services
Kenland (certified)	Public
SS-0303RCG	Southern States
Experimental Varieties¹	
BARTP9	Barenbrug USA
BARTP11	Barenbrug USA
BARTSRWR	Barenbrug USA
CW30091	Barenbrug USA
PSTCLVR20825	Caldbeck Consulting
PSTCLVR981211	Caldbeck Consulting
20-AB-RC-3	Ampac Seed
20-LA-RC-1	Ampac Seed
20-LA-RC-2	Ampac Seed

¹Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 14. Proprietors and clover type of white clover varieties in current grazing trials in Kentucky.

Variety	Type	Proprietor/KY Distributor
Commercial Varieties-Available for Farm Use		
Alice	Intermediate	Barenbrug USA
Cresendo	Ladino	Barenbrug USA
Durana	Intermediate	Pennington Seed
Dusi	Ladino	Barenbrug USA
Kakariki	Ladino	Luisetti Seeds
Kopu II	Intermediate	Ampac Seed
Patriot	Intermediate	Pennington Seed
Neches	Intermediate	Barenbrug USA
Regal Graze	Ladino	Cal/West Seeds
Renovation	Intermediate	Smith Seed
Stamina	Intermediate	Mountain View Seeds
Will	Ladino	Allied Seed
Experimental Varieties¹		
BARTSRWR	red/white blend	Barenbrug USA
CW9501	Ladino	Barenbrug USA
GATR21024D	–	Univ. of GA

¹Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 15. Summary of Kentucky alfalfa grazing trials 2000-2022 (stand persistence shown as a percent of the grazing tolerant Alfagraz).

Variety	Proprietor	Variety Characteristics ¹																				Mean ⁵ (#trials)		
		Disease Resistance ²				00 ^{3,4}				06				12				18						
		FD	Bw	Fw	An	PRR	APH1	APH2	APHZ	00	01	04	05	06	08	09	10	11	12	13	14		16	17
ABT 350	W-L Research	3	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
ABT 405	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	73(2)
Alfabar	Barenbrug USA	3	HR	HR	HR	HR	HR/R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	50
Alfagraz	America's Alfalfa	3	MR	R	MR	R	-	-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100(16)
Alfagraz 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
Alfagraz 600 RR	America's Alfalfa	6	-	R	HR	R	R	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
Amerigrize 401 +Z	America's Alfalfa	4	HR	HR	HR	HR	R	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	79(3)
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	108(7)
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	102(5)
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	89(3)
Apollo	America's Alfalfa	4	R	R	R	R	-	-	17	31	25	36	27	25	17	27	70	55	86	24				37(12)
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	58(2)
Bulldog-505	Univ. of GA	5	-	HR	-	R	-	-									144	100	57					100(3)
FK 421	Donley Seed Co.	4	HR	H	H	H	H	-	100															
Feast	Garst Seeds	3	HR	HR	HR	HR	R	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	90(2)
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	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
Legendairy5.0	Croplan Genetics	3	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	44(2)
PGI 424	Producers Choice	4	HR	HR	HR	HR	R	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
PGI 459	Producers Choice	4	HR	HR	HR	HR	R	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	55(2)
Rebel	Target Seed	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
Rugged	Target Seed	3	HR	HR	HR	HR	HR	MR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
Saranac AR (cert.)	Public	4	MR	R	HR	LR	-	-	100															25
Spredor 3	Syngenta	1	HR	HR	R	MR	S	-				68												-
Spredor 4	Syngenta	2	HR	HR	HR	HR	R	-					25											-
TS 4007	Producers Choice	4	HR	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
TS 4010/A4535	Producers Choice	4	HR	R	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	116(3)
Triple Trust 450	ABI/America's Alfalfa	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	-
115 Brand	Monsanto	3	HR	HR	R	HR	R	-	56	85														71(2)
5432	Pioneer	4	HR	HR	HR	HR	MR	-		51														-

¹Variety characteristics: FD=fal dormancy, Bw=bacterial wilt, Fw=fusarium wilt, An=anthracnose, PRR=phytophthora root rot, APH=aphanomyces root rot. Information provided by seed companies.
²Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=high resistance, HR=high resistance (more detailed disease and insect-resistance ratings at www.alfalfa.org/pdf/2023-Alfalfa-Variety-Leaflet.pdf).
³Year trial was established.
⁴Use 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 the fall of 2011 was grazed for 4 years so final persistence report would be "2015 Alfalfa Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).
⁵Mean only presented when respective variety was included in two or more trials.
⁶Number of years of data.

Table 16. Summary of 2002-2022 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	02 ^{1,2}	4	06 ³	6	08 ⁴	08	09	10	11	12	13	14	15	16	17	18	19	20	Mean ⁵
			2yr ⁶	4yr	2yr	3yr	4yr	3yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr	4yr
Alice	Intermediate	Barenbrug USA		59	98									93	71	79	97	95	91	100	87(9)
Barblanca	Intermediate	Barenbrug USA		118	91	151															120(3)
Canterbury	Dutch	Allied Seed											51	93							72(2)
Colt	Intermediate	Seed Research of OR		114	134	122															123(3)
Crescendo	Ladino	Cal/West	84		72															96	84(3)
Dusi	Ladino	Barenbrug USA																		103	-
Durana	Intermediate	Pennington		83	105	103	115	102	107	126	86	81	81	113	152	86	102	77	104	100	102(16)
GWC-AS10	- ⁷	Ampac Seed							77												-
Insight	Ladino	Allied Seed				77															-
Ivory	Intermediate	DLF Pickseed	132	142																	137(2)
Ivory II	Intermediate	DLF Pickseed					102														-
Kakariki	Ladino	Luisetti Seeds															97			98	98(2)
Kopu II	Intermediate	Ampac Seed			77	122	96	93	113	112	86	106	106	93	87	107		95	106		99(13)
KY Select	Intermediate	KY Agr Ex. Sta.					105		83												94(2)
Neches	- ⁷	Barenbrug USA													104				83	97	95(3)
Patriot	Intermediate	Pennington		110	137	122	100	111	110	123	102	132	109	123	107	107	111	107	118	102	114(16)
Pinnacle	Ladino	Allied Seed								87											-
Rampart	- ⁷	Oregro Seeds					90														-
Regal	Ladino	Public	92		57	54	93		103												80(5)
Regal Graze	Ladino	Cal/West			84	87	105	90	87	93	72	94	81	102	87	107	87	95	85	100	91(16)
Renovation	Intermediate	Smith Seed										102	100	55		97			97		90(5)
Resolute	Intermediate	Southern States			101	106				65											91(3)
Seminole	Ladino	Saddle Butte Ag. Inc.		75		97	91						89	85							97(5)
Tillman II	Ladino	Caudill Seed	92																		-
WBDX	Dutch	Saddle Butte Ag. Inc.							70												-
Will	Ladino	Allied Seed			117	87	107	105	108	143	115	133	157	111	120	114	108	131	116	105	117(16)

¹Year trial was established.

²Use 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 the fall of 2016 was grazed for 4 years so the final persistence report would be "2020 Red and White Clover Grazing Tolerance Report" archived in the UK Forage website (<https://forages.ca.uky.edu>).

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

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

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

⁶Number of years of data.

⁷Type was not provided by the company.



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