



2017 Alfalfa Report

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Introduction

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

This report provides yield data on alfalfa varieties included in current yield trials in Kentucky as well as guidelines for selecting alfalfa varieties. Tables 14 and 15 (Roundup Ready varieties) shows

a summary of all alfalfa varieties tested in Kentucky during the past 16 years. The UK Forage Extension website, at www.uky.edu/Ag/Forage, contains electronic versions of all forage variety testing reports from Kentucky and surrounding states as well as a large number of other forage publications.

Considerations in Selecting an Alfalfa Variety

Local adaptation and persistence. High yields in variety tests over a range of years and locations are the best indication a variety is locally adapted and persistent. Several varieties are adapted for use in Kentucky as determined from results in this report.

Winter-hardiness. Each variety has a fall dormancy (FD) rating that ranges from 1 (very dormant) to 9 (non-dormant). In general, varieties with lower dormancy ratings are more winter-hardy but are slower to initiate growth in the spring and show reduced fall growth. Therefore, fall dormancy can lead to reduced annual yields compared to less-dormant varieties. Generally, alfalfa varieties with FD ratings of 2 to 5 will show good winter survival in Kentucky. Varieties with ratings of 6 and above are usually not winter-hardy under Kentucky conditions. Many Kentucky producers have found that FD 4 varieties provide the best combination of yield and winter survival. In recent years some companies

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2012, 2013, 2014, 2015, 2016, and 2017.

	2012				2013				2014				2015				2016				2017 ²			
	Temp		Rainfall		Temp		Rainfall		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	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	38	+7	4.80	+1.94	38	+7	4.50	+1.64	25	-6	2.28	-.58	32	+1	2.17	-0.69	32	+1	0.80	-2.06	40	+9	6.81	+3.95
FEB	40	+5	5.39	+2.18	36	+1	1.78	-1.43	30	-5	5.47	+2.26	26	-9	3.08	-0.13	38	+3	6.09	+2.88	47	+12	4.46	+1.25
MAR	56	+12	5.64	+1.24	39	-5	5.47	+1.07	39	-5	3.08	-1.32	45	+1	7.34	+2.94	52	+8	4.07	-0.33	48	+4	3.34	-1.06
APR	56	+1	3.26	-0.62	55	0	4.46	+0.58	58	+3	5.27	-1.89	57	+2	13.19	+9.31	57	+2	3.97	+0.09	62	+7	4.17	+0.29
MAY	69	+5	4.02	-0.45	65	+1	5.23	+0.76	66	+2	5.72	+1.25	69	+5	3.02	-1.45	64	0	9.17	+4.70	66	+2	7.74	+3.27
JUN	73	+1	2.42	-1.24	72	0	7.32	+3.66	75	+3	2.93	-0.73	75	+3	8.20	+4.54	76	+4	5.09	+1.43	73	+1	7.68	+4.02
JUL	81	+5	2.50	-2.50	72	-4	9.33	+4.33	74	-2	3.18	-1.82	77	+1	10.22	+5.22	79	+3	7.43	+2.43	76	0	4.49	-0.51
AUG	75	0	1.68	-2.25	72	-3	3.68	-0.25	76	+1	6.53	+2.60	74	-1	3.49	-0.44	79	+4	4.37	+0.44	74	-1	6.66	+2.73
SEP	67	-1	6.40	+3.20	67	-1	2.21	-0.99	69	+1	3.63	+4.3	72	+4	3.49	+0.29	74	+6	2.18	-1.02	69	+1	4.72	+1.52
OCT	55	-2	2.00	-0.57	55	-2	7.02	+4.45	57	0	5.55	+2.98	59	+2	2.78	+0.21	64	+7	0.37	-2.20	60	+3	6.06	+3.49
NOV	43	-2	1.81	-0.65	41	-4	3.06	-0.33	41	-4	2.79	-0.60	51	+6	3.72	+0.33	51	+6	1.94	-1.45				
DEC	42	+6	9.57	+4.94	36	0	4.19	+0.21	40	+4	2.47	-1.51	49	+13	8.42	+4.44	37	+1	9.4	+5.42				
Total			49.49	+4.94			58.25	+13.70			49.4	+4.85			69.12	+24.57			54.88	+10.33			56.13	+18.95

¹ DEP is departure from the long-term average.

² 2017 data is for ten months through October.

Table 2. Temperature and rainfall at Princeton, Kentucky, in 2015, 2016, and 2017.

	2015				2016				2017 ²			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	34	0	1.51	-2.29	35	+1	1.37	-2.43	43	+9	3.18	-0.62
FEB	28	-10	4.16	-0.27	40	+2	4.23	-0.20	49	+11	1.78	-2.65
MAR	46	-1	6.83	+1.89	53	+6	7.3	+2.36	50	+3	4.09	-0.85
APR	60	+1	7.38	+2.58	59	0	4.41	-0.39	63	+4	4.28	-0.52
MAY	68	+1	3.52	-1.44	64	-3	6.21	+1.25	67	0	4.43	-0.53
JUN	76	+1	2.85	-1.00	77	+2	2.18	-1.67	74	-1	5.39	+1.54
JUL	79	+1	8.83	+4.54	80	+2	12.72	+8.43	78	0	2.23	-2.06
AUG	73	-4	2.90	-1.11	78	+2	5.37	+1.36	75	-2	1.39	-2.62
SEP	71	0	0.82	-2.51	73	+2	1.33	-2.00	71	0	3.93	+0.60
OCT	60	+1	4.15	+1.10	65	+6	0.25	-2.80	61	+2	6.65	+3.60
NOV	53	+6	5.95	+1.32	52	+5	2.86	-1.77				
DEC	49	+10	6.37	+1.33	38	-1	6.51	+1.47				
Total			55.27	+4.14			54.74	+3.61			38.35	-4.11

¹ DEP is departure from the long-term average.

² 2017 data is for ten months through October.

Table 4. Dry matter yields, seedling vigor, and stand persistence of alfalfa varieties sown August 9, 2012, at Lexington, Kentucky.

Variety	FD ¹	Seedling Vigor ² , Sep 27, 2012	Percent Stand												Yield (tons/acre)					5-year Total					
			2012		2013		2014		2015		2016		2017		2017		Total								
			Mar 20	Sep 26	Apr 1	Oct 6	Apr 2	Oct 15	Mar 18	Sep 27	Feb 23	Sep 26	Total	Total	Total	May 2		Jun 6	Jul 8		Aug 8				
Commercial Varieties-Available for Farm Use																									
55V50	5	5.0	100	100	100	100	100	99	99	99	98	92	91	89	8.65	6.48	6.84	6.96	1.88	1.51	1.18	0.61	0.65	5.82	34.75*
Phoenix	5	4.8	98	97	97	95	95	95	95	94	91	86	87	85	8.58	6.27	6.28	6.04	1.78	1.60	0.68	1.13	0.78	5.97	33.14*
4030	4	4.5	99	99	99	99	96	97	96	96	86	85	85	85	8.20	5.96	6.20	5.84	1.94	1.57	0.98	0.72	0.85	6.07	32.28*
Bulldog-505	5	5.0	100	100	100	99	98	97	97	96	92	91	91	91	8.00	6.24	5.78	6.24	1.76	1.29	0.98	0.95	0.73	5.72	31.98*
Radiance HD	4	4.5	99	100	100	98	97	94	95	93	86	85	83	82	8.28	6.32	5.95	5.85	1.59	1.32	0.95	0.78	0.64	5.27	31.68*
Calliber	4	4.3	98	100	100	100	99	97	95	96	88	86	87	81	8.14	5.92	5.96	5.62	1.74	1.28	1.02	0.86	0.66	5.56	31.19*
Evermore	5	4.8	100	100	100	100	100	98	97	96	89	89	88	83	8.30	5.92	5.33	6.06	1.68	1.28	0.88	0.83	0.80	5.47	31.07*
Saranac AR (certified)	4	4.8	100	100	100	96	96	93	94	93	83	84	71	7.86	5.83	5.82	5.97	1.47	1.42	0.96	0.76	0.52	5.13	30.61	
Withstand	4	4.8	100	100	100	98	98	96	96	94	84	84	84	7.84	6.07	5.34	5.59	1.91	1.32	0.70	0.70	0.51	5.15	29.99	
Ameristand 403T	4	5.0	100	100	100	98	98	98	97	96	91	90	89	80	8.04	5.94	5.39	4.87	1.68	1.53	1.00	0.62	0.53	5.37	29.60
Arc (certified)	4	4.9	100	100	100	96	94	95	91	92	90	81	79	71	7.40	5.68	5.49	5.33	1.48	1.27	0.98	0.58	0.63	4.95	28.85
Experimental Varieties																									
CW 085028	5	5.0	100	100	100	100	99	98	98	98	91	89	90	80	8.04	6.47	6.21	6.53	1.85	1.39	1.31	0.74	0.51	5.81	33.05*
CW 065030	5	4.8	100	100	100	99	98	98	98	97	91	90	91	7.81	6.37	6.08	6.37	1.54	1.51	0.93	1.06	0.80	0.80	5.85	32.47*
GA-ALFG-1	-	5.0	100	99	97	96	95	95	95	95	88	86	86	76	7.21	5.63	5.65	5.93	1.45	0.89	0.99	0.56	0.49	4.38	28.80
Mean		4.8	99	100	99	98	96	96	96	96	88	87	84	80	8.02	6.08	5.88	5.94	1.70	1.37	0.97	0.78	0.65	5.47	31.39
CV%		6.2	1	1	2	2	3	2	3	3	4	6	9	7	7.46	8.38	11.27	14.26	16.86	28.21	30.36	34.68	36.17	16.28	8.57
LSD _{0.05}		0.4	2	1	3	2	4	3	3	3	3	5	7	11	0.86	0.73	0.95	1.21	0.41	0.55	0.42	0.39	0.34	1.27	3.85

¹ FD=Fall dormancy

² Vigor 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.

certified seed or proprietary seed of an improved variety. An improved variety is one that has performed well in independent trials, such as those that are reported in this publication or others like it. Other information on the label will include the test date, which must be within the previous nine months, the level of germination, and the percentage of other crop and weed seed. Order seed well in advance of planting time to assure it will be available when needed.

Description of the Tests

Alfalfa variety tests were established at Lexington (2011, 2012, 2015, 2016, and 2017) and Princeton (2015) as part of the forage variety testing program. The soils are well suited to alfalfa because they are generally well drained silt loam soils (Maury and Crider at Lexington and Princeton respectively).

Plots were 5 feet by 20 feet in a randomized complete block design with four replications with a harvested plot area of 5 feet by 15 feet. In each test, 20 pounds of seed per acre were planted into a prepared seedbed using a disk drill. Plots were harvested with a sickle-type forage plot harvester. First cuttings in the seeding year were delayed to allow alfalfa to reach maturity, indicated by full bloom. Otherwise, harvests were taken when the alfalfa was in the bud to early flower stage. Fresh weight samples were taken at each harvest to calculate percentage of dry matter production. Management of all tests for establishment, fertility (P, K, Boron, and lime based on regular soil tests), pest control, and harvest management was according to Kentucky Cooperative Extension recommendations. Pests (weeds and insects) were controlled so that they would not limit yield or persistence. Roundup was applied for weed control in the Roundup Ready trials.

Results and Discussion

Weather data for Lexington and Princeton are presented in tables 1 and 2. Yield data (on a dry matter basis) for all tests are reported in tables 3 through 11. Stated yields are adjusted for percentage of weeds; therefore, the value listed is for the crop only. Varieties are listed in order from highest to lowest total production (for the life of the test). Experimental varieties are listed separately at the bottom of the tables and are not available commercially. Yields are given by cutting date for 2017 and as total annual production.

Statistical analyses were performed on all alfalfa yield data (including experimentals) to determine if the apparent differences are due to variety. Varieties not significantly different from the highest numerical value in a column are marked with an asterisk (*). To determine if two varieties are statistically 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

Table 6. Dry matter yields and stand persistence of alfalfa varieties sown March 31, 2015, at Lexington, Kentucky.

Variety	FD ¹	Percent Stand						Yield (tons/acre)									3-year Total
		2015		2016		2017		2015 Total	2016 Total	2017							
		Jun 12	Oct 15	Mar 18	Sep 27	Feb 23	Sep 26			May 2	Jun 6	Jul 8	Aug 8	Sep 14	Total		
Commercial Varieties-Available for Farm Use																	
Ameristand 427TQ	4	99	98	97	92	91	91	1.71	6.36	1.58	1.82	1.66	1.03	0.74	6.82	14.89*	
Caliber	4	95	97	97	94	93	93	2.08	7.02	1.61	1.16	1.03	0.93	0.59	5.31	14.42*	
Ameristand 403T Plus	4	89	95	95	92	90	89	1.47	6.87	1.58	1.63	1.15	0.92	0.55	5.84	14.18*	
Fierce	4	92	94	94	89	85	85	1.97	6.40	1.65	1.36	1.15	0.82	0.69	5.67	14.04*	
FSG-426	4	95	97	97	94	92	94	2.01	6.10	1.52	1.85	1.12	0.76	0.66	5.91	14.02*	
Contender	5	95	96	96	91	92	90	1.77	5.76	1.72	1.64	1.17	0.80	0.76	6.09	13.61*	
Saranac AR (certified)	4	81	88	89	89	86	84	1.23	6.21	1.78	1.54	1.18	0.86	0.53	5.89	13.32	
Buffalo	–	96	95	94	89	86	81	1.36	6.25	1.59	1.28	0.89	0.65	0.40	4.82	12.43	
Mean		92	95	95	91	88	88	1.70	6.37	1.63	1.54	1.17	0.85	0.61	5.79	13.86	
CV,%		8	5	5	4	4	5	20.84	12.22	11.29	23.48	19.10	20.36	37.32	8.05	7.15	
LSD,0.05		11	7	7	6	6	7	0.52	1.15	0.27	0.52	0.33	0.31	0.34	0.67	1.46	

¹ FD=Fall Dormancy

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

Table 7. Dry matter yields and stand persistence of Roundup Ready alfalfa varieties sown March 31, 2015, at Lexington, Kentucky.¹

Variety	FD ²	Percent Stand						Yield (tons/acre)									3-year Total
		2015		2016		2017		2015 Total	2016 Total	2017							
		Jun 12	Oct 15	Mar 18	Sep 27	Feb 23	Sep 26			May 2	Jun 6	Jul 8	Aug 8	Sep 14	Total		
Commercial Varieties-Available for Farm Use																	
54R02 RR	4	99	99	98	96	95	95	2.61	7.49	1.63	1.71	1.34	1.06	0.81	6.56	16.66*	
55VR08 RR	5	100	100	100	98	97	97	2.42	6.92	1.68	1.77	1.54	1.33	0.79	7.11	16.44*	
Ameristand 405T RR	4	99	99	99	97	96	96	2.21	6.87	1.50	1.87	1.55	1.02	0.95	6.91	15.98*	
Alfagraze 600 RR	6	99	100	98	95	94	95	2.67	6.55	1.34	1.70	1.19	1.22	0.80	6.25	15.47*	
Ameristand 455TQ RR	4	99	98	99	98	96	97	2.06	6.62	1.39	1.98	1.45	1.25	0.68	6.75	15.43*	
WL 356HQ RR	4	97	98	98	96	96	96	1.79	7.10	1.54	1.73	1.20	1.02	0.77	6.26	15.15*	
Ameristand 433T RR	3	98	99	99	95	94	95	2.13	6.57	1.44	1.67	1.41	0.94	0.63	6.09	14.79*	
Alfagraze 300 RR	3	98	99	99	97	96	96	1.64	6.05	1.75	1.70	1.44	1.18	0.74	6.81	14.50*	
428 RR	4	97	97	98	96	95	96	1.79	6.35	1.19	1.73	1.35	1.08	0.73	6.08	14.22*	
55V06 RR	5	99	99	99	97	96	96	1.61	5.92	1.41	1.60	1.34	1.15	0.70	6.19	13.71*	
Mean		98	99	99	96	95	96	2.09	6.64	1.49	1.75	1.38	1.13	0.76	6.50	15.23	
CV,%		2	2	2	2	2	2	30.03	15.77	20.93	18.14	16.72	25.45	33.39	12.59	14.42	
LSD,0.05		3	2	2	3	2	2	0.91	1.52	0.45	0.46	0.34	0.42	0.37	1.19	3.19	

¹ This trial was sprayed with Roundup once in 2015, twice in 2016 and once in 2017.

² FD=Fall Dormancy.

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

- "Emergency" Inoculation for Poorly Nodulated Legumes (PPFS-AG-F-04)
- Common Alfalfa Seedling Diseases and Disorders (PPFS-AG-F-03)
- Managing Diseases of Alfalfa (PPFS-AG-F-09)
- Managing Legume-Induced Bloat in Cattle (ID-186)
- Growing Alfalfa in the South, a publication of the National Alfalfa & Forage Alliance: www.alfalfa.org/pdf/alfalfainthesouth.pdf
- Alfalfa Management Guide: www.crops.org/files/publications/alfalfa-management-guide.pdf
- Alfalfa Analyst (ID guide to alfalfa disease and insect damage and soil fertility deficiencies): www.alfalfa.org/pdf/AlfalfaAnalyst.pdf
- Alfalfa Variety Ratings, Winter Survival, Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties: www.alfalfa.org/varietyLeaflet.php

About the Authors

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Table 8. Dry matter yields and stand persistence of alfalfa varieties sown April 5, 2016, at Lexington, Kentucky.

Variety	FD ¹	Percent Stand				Yield (tons/acre)							2-year Total
		2016		2017		2016 Total	2017						
		Jun 16	Sep 27	Feb 23	Sep 26		May 2	Jun 6	Jul 8	Aug 8	Sep 15	Total	
Commercial Varieties-Available for Farm Use													
Ameristand 403T Plus	4	97	93	91	92	2.31	2.17	1.99	1.37	1.25	0.90	7.69	10.00*
FSG 415BR	4	92	89	91	91	2.26	2.02	1.75	1.67	1.13	1.10	7.68	9.94*
Contender	5	96	94	93	94	1.90	2.04	1.82	1.62	1.21	1.06	7.74	9.64*
GA-497HD	5	97	97	96	96	2.14	1.95	1.88	1.67	1.15	0.85	7.50	9.64*
Rebound 6XT	4	96	94	93	94	2.04	1.85	1.85	1.51	1.18	0.91	7.30	9.34*
Caliber	4	96	95	94	95	1.88	1.71	2.05	1.57	1.10	0.97	7.39	9.27*
WL 365HQ	5	98	95	94	95	2.10	1.92	1.83	1.23	1.13	0.96	7.07	9.17*
Evermore	5	97	97	96	96	2.20	2.03	1.52	1.49	1.07	0.83	6.95	9.15*
Bulldog 505	5	93	91	90	90	1.46	2.07	1.70	1.43	1.26	1.15	7.62	9.07*
Saranac AR (certified)	4	94	92	91	91	1.84	1.88	1.59	1.43	0.96	1.03	6.90	8.74*
Experimental Varieties													
AFX095026	4	92	91	90	92	1.96	1.95	1.79	1.66	1.30	1.07	7.77	9.73*
AM-14-900	4	93	92	92	95	1.97	2.08	1.87	1.46	1.24	1.03	7.68	9.64*
AM-09-600	4	95	94	94	94	1.60	1.92	1.92	1.72	1.20	0.97	7.73	9.33*
AFX095005	5	95	93	92	94	1.66	1.88	1.55	1.28	1.48	1.22	7.42	9.08*
LS 905	4	95	95	96	96	1.79	1.79	1.68	1.43	1.12	0.91	6.93	8.72*
NF11ALF006	6	95	93	91	92	1.38	1.54	1.18	1.12	1.16	0.65	5.65	7.03
Mean		95	93	93	94	1.91	1.93	1.75	1.48	1.18	0.98	7.31	9.22
CV,%		4	4	4	3	21.81	17.11	19.44	17.24	22.51	24.66	11.89	10.99
LSD,0.05		5	6	5	4	0.59	0.47	0.48	0.36	0.38	0.34	1.24	1.44

¹ FD=Fall Dormancy

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

Table 9. Dry matter yields and stand persistence of Roundup Ready alfalfa varieties sown April 5, 2016, at Lexington, Kentucky.

Variety	FD ¹	Percent Stand				Yield (tons/acre) ²					
		2016		2017		2017					
		Jun 16	Sep 27	Feb 23	Sep 26	May 2	Jun 6	Jul 8	Aug 8	Sep 14	Total
Commercial Varieties-Available for Farm Use											
55VRO8 RR	5	99	94	94	94	2.06	2.03	1.41	1.38	0.85	7.73
Stratica RR	4	96	94	94	95	1.96	1.82	1.69	1.25	0.80	7.53
Ameristand 433T RR	3	97	93	92	95	2.09	1.91	1.65	1.08	0.66	7.38
Alfagraze 300 RR	3	99	99	98	98	1.93	1.70	1.74	1.18	0.77	7.32
428 RR	4	98	86	86	87	1.87	1.83	1.52	1.21	0.63	7.06
54RO2 RR	4	96	92	92	92	2.01	1.77	1.50	1.11	0.66	7.05
Ameristand 405T RR	4	94	88	89	89	2.04	1.66	1.47	0.93	0.44	6.53
Mean		97	92	92	93	2.00	1.83	1.58	1.15	0.68	7.25
CV,%		3	9	9	8	11.37	14.27	12.73	24.15	27.84	9.39
LSD,0.05		4	12	11	10	0.32	0.37	0.28	0.39	0.27	0.96

¹ FD=Fall Dormancy.

² Due to slow establishment and high CV, the 2016 yield is not included in this table.

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

Table 10. Dry matter yields and stand persistence of alfalfa varieties sown April 5, 2017, at Lexington, Kentucky.

Variety	FD ¹	Percent Stand	Yield (tons/acre)				Total
			2017				
		Sep 26	Jul 8	Aug 17	Sep 14	Total	
Commercial Varieties-Available for Farm Use							
Ameristand 403TPlus	4	96	0.92	0.70	0.65	2.27*	
Contender	5	94	0.76	0.70	0.64	2.10*	
Caliber	4	95	0.80	0.52	0.67	2.00*	
Evermore	5	93	0.62	0.84	0.50	1.96*	
Fierce	4	96	0.76	0.60	0.53	1.89*	
Saranac AR (certified)	4	87	0.64	0.65	0.54	1.83*	
Bulldog 505	5	92	0.57	0.63	0.46	1.66*	
Experimental Varieties							
NF11ALF006	6	93	0.55	0.61	0.50	1.65*	
Mean		93	0.70	0.66	0.56	1.92	
CV,%		5	32.23	28.73	28.47	24.18	
LSD,0.05		7	0.33	0.28	0.23	0.68	

¹ FD=Fall Dormancy.

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

Table 11. Dry matter yields, seedling vigor, and stand persistence of Roundup Ready alfalfa varieties sown August 25, 2015, at Princeton, Kentucky.¹

Variety	FD ²	Seedling Vigor ³ Oct 23, 2015	Percent Stand						2016 Total	2017 May 9	Jun 12	Jul 11	Aug 14	Sep 21	Total	2-year Total
			2015		2016		2017									
			Oct 23	Mar 22	Sep 23	Mar 16	Oct 25	Total								
Commercial Varieties-Available for Farm Use																
WL 355 RR	4	3.5	100	100	98	95	90	8.50	1.02	1.59	1.22	1.01	0.62	5.47	13.97*	
55VR08 RR	5	4.5	100	100	100	95	96	8.95	0.96	1.52	1.11	0.70	0.63	4.92	13.87*	
54R02 RR	4	4.5	100	100	100	92	82	8.12	1.02	1.52	1.07	0.70	0.50	4.80	12.92*	
DKA41-18 RR	4	3.6	100	100	99	88	87	8.16	0.92	1.40	1.12	0.61	0.38	4.43	12.60*	
Ameristand 405T RR	4	3.8	100	100	100	91	85	8.32	0.69	1.24	1.12	0.57	0.50	4.12	12.44*	
Ameristand 433T RR	3	4.5	100	100	99	90	87	7.75	0.75	1.38	0.83	0.65	0.69	4.37	12.13	
Alfagraze 300 RR	3	4.0	100	100	98	76	79	7.73	0.63	1.42	0.94	0.75	0.41	3.99	11.76	
Alfagraze 600 RR	6	5.0	100	100	97	80	75	6.89	0.49	1.30	0.77	0.64	0.61	3.82	10.70	
Mean		4.2	100	100	99	89	85	8.05	0.82	1.42	1.03	0.71	0.54	4.53	12.65	
CV,%		11.9	0	0	2	12	18	7.34	32.14	18.85	22.25	26.29	40.41	16.37	8.95	
LSD,0.05		0.7	0	0	3	16	25	0.87	0.40	0.40	0.35	0.28	0.34	1.17	1.79	

¹ This trial was sprayed with Roundup twice in 2016 and once in 2017.

² FD=Fall Dormancy.

³ Vigor 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 12. Characterization and performance of alfalfa varieties across years and locations in Kentucky.

Variety	Proprietor	Variety Characteristics ¹						Lexington																	
		FD ⁴	Disease Resistance ²					2011 ³	2012					2015			2016			2017					
			Bw	Fw	An	PRR	APH	12	13	14	15	16	17	13	14	15	16	17	15	16	17	16	17	17	
Commercial Varieties-Available for Farm Use																									
4030	Brett Young	4	HR	HR	HR	HR	HR								*	*	*	*	*						
53H92	Pioneer Hi-Bred	3	HR	HR	HR	HR	HR	*	x ⁵	x	*	x	x												
54Q32	Pioneer Hi-Bred	4	HR	HR	HR	HR	R	*	x	x	x	*	*												
55V48	Pioneer Hi-Bred	5	HR	HR	HR	HR	HR	*	*	*	*	x	*												
55V50	Pioneer Hi-Bred	5	HR	R	HR	HR	HR							*	*	*	*	*							
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR	*	x	*	*	*	*	*	*	*	x	x	*						
Ameristand 403TPlus	America's Alfalfa	4	HR	HR	HR	HR	HR													x	*	x	*	*	*
Ameristand 427TQ	America's Alfalfa	4	HR	HR	HR	HR	HR													*	*	*			
Arc (certified)	Public	4	LR	MR	HR	-	-	*	x	x	x	x	*	x	x	x	x	*							
Buffalo	Public	-	-	-	-	-	-	x	x	x	x	x	x							x	*	x			
Bulldog-505	Univ. of Georgia	5	-	HR	-	R	-							*	*	x	*	*					x	*	*
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR							*	*	*	x	*	*	*	*	x	*	*	*
Contender	Beck's Hybrids	5	HR	HR	HR	HR	HR												*	x	x	*	*	*	*
Evermore	Allied Seed, LLC	5	HR	HR	HR	HR	HR							*	*	x	*	*				*	*	*	*
Fierce	Beck's Hybrids	4	HR	HR	HR	HR	HR												*	*	x				*
FSG 415BR	Farm Science Genetics	4	HR	HR	HR	HR	HR												*	*	x				*
FSG 426	Farm Science Genetics	4	HR	HR	HR	HR	HR												*	*	x				*
GA-497HD	Legacy Seeds, Inc.	5	HR	HR	HR	HR	HR																*	*	
KingFisher 4020	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	*	x	*	*	*	*												
Phoenix	Southern States	5	HR	HR	HR	HR	R							*	*	*	*	*							
RadianceHD	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR							*	*	*	*	*							
Rebound 6.0	Croplan Genetics	4	HR	HR	HR	HR	HR	*	*	*	*	*	*												
Rebound 6XT	Croplan Genetics	4	HR	HR	HR	HR	HR																*	*	
Saranac AR (certified)	Public	4	MR	R	HR	LR	-	*	x	x	x	x	x	x	*	*	x	*	*	x	*	x	*	*	*
6422Q	NEXGROW	4	HR	HR	HR	HR	HR	*	*	*	*	*	*												
TripleTrust 500	Central Farm Supply	5	HR	HR	HR	HR	HR	*	*	*	*	*	*												
Withstand	Southern States	4	HR	HR	HR	HR	HR							x	*	x	x	*							
WL 363HQ	W-L Research	5	HR	HR	HR	HR	HR	*	*	*	*	*	*												
WL 365HQ	W-L Research	5	HR	HR	HR	HR	HR																*	*	
Experimental Varieties																									
AM-09-600	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR																x	*	
AM-14-900	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR																*	*	
AFX095005	Alforex Seeds	5	HR	HR	HR	HR	HR																x	*	
AFX095026	Alforex Seeds	4	HR	HR	HR	HR	R																*	*	
CW 065030	Beck's Hybrids	5	HR	HR	HR	HR	HR							x	*	*	*	*	*						
CW 085028	Cal/West Seeds	5	HR	HR	-	HR	-							*	*	*	*	*	*						
GA-ALFG-1	Univ. of Georgia	-	-	-	-	-	-							x	x	x	*	x							
LS 905	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR																*	*	
NF11ALF0006	Noble Foundation	6	-	-	-	-	-																x	x	*

¹ Variety characteristics: FD=fall dormancy, Bw=bacterial wilt, Fw=fusarium wilt, An=anthracnose, PRR=phytophthora root rot, APH-aphanomyces root rot.

Information provided by seed companies.

² Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.

³ Establishment year.

⁴ Fall dormancy-check varieties: 1=Spredor 3, 2=Vernal, 3=Ranger, 4=Saranac, 5=DuPuits.

⁵ "x" in the box indicates the variety was in the test but yielded significantly less than the top-ranked variety in the test.

Open boxes indicate the variety was not in the test.

* Not significantly different from the top-ranked variety in the test.

Table 13. Characterization and performance of Roundup Ready alfalfa varieties across years and locations in Kentucky.

Variety	Proprietor	Lexington																	Princeton					
		Variety Characteristics ¹																	2015		2016		2017	
		Disease Resistance ²			2012 ³														2015	2016	2017	2015	2016	2017
FD ⁴	Bw	Fw	An	PRR	APH	13	14	15	16	17	15	16	17	15	16	17	15	16	17	15	16	17		
Commercial Varieties-Available for Farm Use																								
428 RR	Allied Seed, LLC	4	HR	HR	HR	HR	HR	HR	HR	HR														
54R02 RR	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR	HR	HR	HR	x ⁵	*	*											
55VR06 RR	DuPont Pioneer	5	HR	HR	HR	HR	HR	HR	HR	HR														
55VR08 RR	DuPont Pioneer	5	-	HR	HR	HR	HR	HR	HR	HR														
6516R RR	NEXGROW	5	HR	-	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	HR	HR	HR	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Alfagraze 600 RR	America's Alfalfa	6	-	R	HR	R	HR	R	HR	R														
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	*	x	*	*	*	*	*	*	*	*	*	*	*	*
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	HR	HR	HR	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ameristand 455TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
AphaTron RR	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
DKA 41-18 RR	Monsanto	4	HR	HR	HR	HR	HR	HR	HR	HR	x	*	*	*	*	*	*	*	*	*	*	*	*	*
DKA 44-16 RR	Monsanto	4	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Stratica RR	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Tonnica RR	Croplan Genetics	5	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*
WL 355 RR	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	x	*	*	*	*	*	*	*	*	*	*	*	*	*
WL 356HQ RR	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	*	x	*	*	*	*	*	*	*	*	*	*	*	*
WL 372HQ RR	W-L Research	5	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*

¹ Variety characteristics: FD=fall dormancy, Bw=bacterial wilt, Fw=fusarium wilt, An=anthracnose, PRR=phytophthora root rot, APH=aphanomyces root rot, information provided by seed companies.

² Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.

³ Establishment year.

⁴ Fall dormancy-check varieties: 1=Spredor 3, 2=Vernal, 3=Ranger, 4=Saranac, 5=DuPuits.

⁵ "x" in the box indicates the variety was in the test but yielded significantly less than the top-ranked variety in the test.

Open boxes indicate the variety was not in the test.

* Not significantly different from the top-ranked variety in the test.

Table 15. Summary of Kentucky Roundup Ready alfalfa yield trials 2011-2017 (yield shown as a percentage of the mean of the commercial varieties in the test).

Variety	Proprietor	Variety Characteristics ¹						Lexington		Princeton			Quicksand	Mean ⁵ (# trials)
		FD	Disease Resistance ²					12 ^{3,4}	15	11	13	15	14	
			Bw	Fw	An	PRR	APH	5yr ⁶	3yr	5yr	4yr	2yr	2yr	
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	94	95	93	99	93		95(5)
Alfagraze 600 RR	America's Alfalfa	6		R	HR	R	R		102			85	93	93(3)
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	98	105	97	100	98	93	99(6)
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	91	97		95	96	107	97(5)
Ameristand 445TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	104	101		100			102(3)
AphaTron RR	Croplan Genetics	4	HR	HR	HR	HR	HR	100			98			99(2)
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR	99		102				101(2)
DKA-41-18 RR	Monsanto	4	HR	HR	HR	HR	HR	98		101		100		100(3)
DKA 44-16 RR	Monsanto	4	HR	HR	HR	HR	HR	105			100			103(2)
Stratica RR	Croplan Genetics	4	HR	HR	HR	HR	HR	98			96			97(2)
Tonnica RR	Crop Genetics	5	HR	HR	HR	HR	HR	106			101			104(2)
WL 355 RR	W-L Research	4	HR	HR	HR	HR	HR	100		102		110		104(3)
WL 356HQ RR	W-L Research	5	HR	HR	HR	HR	HR	100	99		96			98(3)
WL 372HQ RR	W-L Research	5	HR	HR	HR	HR	HR	102			106			104(2)
428 RR	Allied Seed	4	HR	HR	HR	HR	HR		93		104		111	103(3)
54R02 RR	Dupont Pioneer	4	HR	HR	HR	HR	HR	98	109	104		102	97	102(5)
55VR06 RR	Dupont Pioneer	5	HR	R	Hr	HR	HR		90				99	95(2)
55VR08 RR	Dupont Pioneer	5	-	HR	HR	HR	HR		108					-
6516R RR	NEXGROW	5	HR	-	HR	HR	HR	106			109			108(2)

¹ Variety characteristics: FD=fall dormancy, Bw=bacterial wilt, Fw=fusarium wilt, An=anthracnose, PRR=phytophthora root rot, APH-aphanomyces root rot. Information provided by seed companies.

² Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.

³ Year trial was established.

⁴ Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific test. For example, the Princeton trial planted in 2011 was harvested for five years, so the final yield report would be "2016 Alfalfa Report" archived in the KY Forage website at www.uky.edu/Ag/Forage.

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

⁶ Number of years of data.