

# 2014 Alfalfa Report

G.L. Olson, S.R. Smith, and G.D. Lacefield, Plant and Soil Sciences

## 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. Table 13 shows a summary of all alfalfa varieties tested in Kentucky during the past 15 years. The UK Forage Extension Web site at [www.uky.edu/Ag/Forage](http://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 also have begun to report a winter survival index (WS) that ranges from 1 to 6. Varieties with a WS of 1 show superior winter survival, and varieties with a WS of 6 are not winter-hardy.

**Disease and pest resistance.** In Kentucky, producers should use varieties that are resistant (R) to *aphanomyces* root rot (APH), *phytophthora* root rot (PRR) and anthracnose (AN) and have at least a moderate resistance (MR) to bacterial wilt (Bw) and fusarium wilt (Fw). Kentucky research indicates that *aphanomyces* root rot is a widespread problem in the state during stand establishment and resistance is beneficial, particularly in soils also infested with *phytophthora* root rot.

*Phytophthora* root rot is a fungal disease associated with poorly drained soils or excessive rainfall. This disease causes yellowish- to reddish-brown areas on roots and crowns that eventually become black and rotten. The top growth of infected plants appears stunted and yellow.

Anthracnose, also caused by a fungus, attacks the stems of alfalfa, preventing water flow to the rest of the shoot and causing sudden wilting. These wilted shoots have a characteristic "shepherd's crook" appearance. Anthracnose can also cause a bluish-black crown rot. Bacterial wilt and fusarium wilt are infections of the water-conducting tissues of alfalfa roots and do not cause any noticeable root rot. These diseases prevent water flow to leaves, resulting in wilting of shoots and the eventual death of infected plants. Roots infected with bacterial wilt often have a yellowish-brown discoloration of the inner woody cylinder of the taproot. Fusarium infection can be recognized by brown-to-red streaks in the inner woody cylinder of the taproot.

*Aphanomyces* root rot is another fungal disease associated with poorly drained soils or excessive rainfall. Affected seedlings will be stunted but remain

Table 1. Temperature and rainfall at Lexington, Kentucky in 2011, 2012, 2013 and 2014.

	2011				2012				2013				2014 <sup>2</sup>			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	29	-2	2.10	-0.76	38	+7	4.80	+1.94	38	+7	4.50	+1.64	25	-6	2.28	-.58
FEB	39	+4	6.34	+3.13	40	+5	5.39	+2.18	36	+1	1.78	-1.43	30	-5	5.47	+2.26
MAR	47	+3	4.76	+0.36	56	+12	5.64	+1.24	39	-5	5.47	+1.07	39	-5	3.08	-1.32
APR	58	+3	12.36	+8.48	56	+1	3.26	-0.62	55	0	4.46	+0.58	58	+3	5.27	-1.89
MAY	64	0	6.72	+2.25	69	+5	4.02	-0.45	65	+1	5.23	+0.76	66	+2	5.72	+1.25
JUN	74	+2	2.61	-1.05	73	+1	2.42	-1.24	72	0	7.32	+3.66	75	+3	2.93	-0.73
JUL	80	+4	6.29	1.29	81	+5	2.50	-2.50	72	-4	9.33	+4.33	74	-2	3.18	-1.82
AUG	75	0	2.89	-1.04	75	0	1.68	-2.25	72	-3	3.68	-0.25	76	+1	6.53	+2.60
SEP	66	-2	5.52	+2.32	67	-1	6.40	+3.20	67	-1	2.21	-0.99	69	+1	3.63	+.43
OCT	55	-2	4.10	+1.53	55	-2	2.00	-0.57	55	-2	7.02	+4.45	57	0	5.55	+2.98
NOV	50	+5	9.53	+6.14	43	-2	1.81	-0.65	41	-4	3.06	-0.33				
DEC	41	+5	5.58	+1.60	42	+6	9.57	+4.94	36	0	4.19	+0.21				
Total			68.80	+24.25			49.49	+4.94			58.25	+13.70			44.14	+6.96

<sup>1</sup> DEP is departure from the long-term average.

<sup>2</sup> 2014 data is for ten months through October.

**Table 2. Temperature and rainfall at Princeton, Kentucky in 2009, 2010, 2011, 2012, 2013 and 2014.**

	2009				2010				2011				2012				2013				2014 <sup>2</sup>			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	33	-1	0.94	-2.86	31	-3	3.06	-0.74	32	-2	2.35	-1.45	40	+6	3.01	-0.79	38	+4	6.31	+2.51	30	-4	1.70	-2.10
FEB	42	+4	3.28	-1.15	33	-5	1.54	-2.89	40	+2	5.71	+1.28	54	+6	1.73	-2.70	39	+1	3.09	-1.34	32	-6	4.75	+0.32
MAR	53	+6	2.89	-2.05	48	+1	3.24	-1.70	50	+3	5.54	+0.60	60	+13	3.27	-1.67	42	-5	4.34	-0.60	43	-4	7.43	-0.51
APR	58	-1	5.35	+0.55	62	3	3.3	-1.54	61	+2	16.15	+11.35	60	+1	0.62	-4.18	57	-2	5.72	+0.92	59	0	8.5	+3.70
MAY	67	0	6.14	+1.18	69	+2	10.41	+5.45	66	-1	7.22	+2.26	71	+4	1.36	-3.60	66	-1	4.26	-0.70	68	+1	1.96	-3.00
JUN	77	+2	7.97	+4.12	79	4	4.82	0.97	77	+2	4.60	+0.75	74	-5	2.38	-1.47	74	-1	7.55	+3.70	76	+1	3.25	-0.60
JUL	74	-4	7.45	+3.16	80	2	2.73	-1.56	81	+3	2.98	-1.31	83	+5	1.40	-2.89	75	-3	4.44	+0.15	73	-5	1.56	-2.73
AUG	75	-2	2.44	-1.60	81	4	2.46	-1.55	77	0	3.95	-0.06	77	0	4.27	+0.26	75	-2	5.59	+1.58	78	0	9.33	+5.32
SEP	71	0	4.61	+1.28	72	1	0.94	-2.39	68	-3	3.86	+0.53	69	-2	5.45	+1.82	71	0	5.37	+2.04	69	-2	0.97	-2.36
OCT	55	-4	9.08	+6.03	60	+1	0.97	-2.08	57	-2	1.35	-1.70	57	-2	2.94	-0.11	59	0	4.04	+0.99	59	0	4.36	+1.31
NOV	52	+5	1.50	-3.13	49	+2	3.98	-1.65	51	+4	9.12	+4.49	45	-2	2.11	-2.52	44	-3	1.37	-3.26				
DEC	36	-3	2.73	-2.31	32	-7	1.57	-3.47	42	+3	6.13	+1.09	45	+6	4.77	-0.27	38	-1	5.41	+0.37				
Total			54.31	+3.22			39.02	-12.11			68.96	+17.83			33.01	-18.12			57.49	+6.36			40.81	-0.65

<sup>1</sup> DEP is departure from the long-term average.

<sup>2</sup> 2014 data is for ten months through October.

**Table 3. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown September 14, 2011 at Lexington, Kentucky.**

Variety	Seedling Vigor, Oct 11, 2011	Available for Farm Use	Percent Stand			Yield (tons/acre)			2014			2012			2013			2014			3-year Total			
			2011	2012	2013	2014	Oct 1	Oct 21	Mar 21	Oct 11	Mar 20	Sep 26	Apr 1	Oct 6	Total	May 8	Jun 10	Total	May 8	Jun 10	Total	Aug 15	Sep 18	Total
			Commercial Varieties—Available for Farm Use	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand	Percent	Stand
6422Q	4.5	100	100	100	100	100	100	100	100	100	100	100	100	100	3.78	8.85	1.58	1.60	1.16	0.79	1.07	6.21	18.83*	
TripleTrust 500	3.9	100	100	100	100	100	100	97	98	3.94	8.56	1.49	1.56	1.01	0.66	1.18	5.90	18.39*						
Rebound 6.0	4.9	100	100	100	100	100	100	100	100	100	100	100	100	100	3.60	8.59	1.56	1.50	1.01	0.73	1.11	5.91	18.10*	
55VA18	4.6	100	100	100	100	100	100	100	100	100	100	100	100	100	3.70	8.49	1.57	1.55	1.02	0.64	1.04	5.83	18.01*	
WL263HQ	4.4	100	100	100	100	100	100	99	99	99	99	99	99	99	3.92	8.26	1.47	1.46	0.94	0.71	1.06	5.63	17.81*	
Kingfisher 4020	3.8	100	100	99	100	100	98	97	97	97	97	97	97	97	3.72	8.30	1.39	1.34	0.95	0.68	1.16	5.72	17.74*	
Ameristand 403T	4.0	100	100	99	100	100	99	97	97	97	97	97	97	97	3.80	7.85	1.43	1.48	0.93	0.68	1.23	5.75	17.40*	
54Q32	4.1	100	100	100	100	100	100	100	100	100	100	100	100	100	3.47	7.90	1.48	1.41	0.94	0.56	0.98	5.38	16.75	
53H92	4.1	100	100	100	100	100	100	99	99	99	99	99	99	99	3.45	7.83	1.36	1.43	0.90	0.56	1.04	5.29	16.57	
Saranac AR (certified)	4.0	100	100	100	100	97	96	93	93	3.61	7.42	1.36	1.32	0.86	0.59	1.27	5.40	16.43						
Arc (certified)	4.5	100	100	100	100	97	96	93	93	3.73	7.13	1.21	1.27	0.91	0.62	1.23	5.25	16.11						
Buffalo	4.8	100	100	100	100	95	95	84	84	3.25	6.96	1.41	1.29	0.90	0.54	1.13	5.27	15.48						
Mean	4.3	100	100	100	100	99	98	96	96	3.66	8.01	1.44	1.45	0.96	0.65	1.13	5.62	17.30						
CV%	13.5	0	0	1	1	1	1	2	2	3	0.58	0.56	0.19	0.17	0.22	0.25	0.81	1.76						
LSD(0.05)	0.8	0	0	1	1	2	2	3	3	0.58	0.56	0.19	0.17	0.22	0.25	0.81	1.76							

<sup>1</sup> 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 4. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown August 9, 2012 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Sep 27, 2012	Percent Stand					Yield (tons/acre)								2-year Total
		2012		2013		2014		2013		2014					
		Sep 27	Mar 20	Sep 26	Apr 1	Oct 6	Total	May 8	Jun 10	Jul 17	Aug 15	Sep 18	Total		
<b>Commercial Varieties—Available for Farm Use</b>															
55V50	5.0	100	100	100	100	100	8.65	1.79	1.68	1.22	0.73	1.07	6.48	15.13*	
Phoenix	4.8	98	99	97	95	97	8.58	1.68	1.57	1.22	0.72	1.07	6.27	14.85*	
Radiance HD	4.5	99	100	100	98	97	8.28	1.60	1.56	1.30	0.81	1.05	6.32	14.60*	
Bulldog-505	5.0	100	100	99	98	98	8.00	1.60	1.53	1.17	0.79	1.16	6.24	14.24*	
Evermore	4.8	100	100	100	100	100	8.30	1.77	1.46	1.09	0.61	0.98	5.92	14.22*	
4030	4.5	99	100	99	98	99	8.20	1.60	1.55	1.06	0.72	1.03	5.96	14.16*	
Caliber	4.3	98	100	100	99	99	8.14	1.71	1.51	1.08	0.59	1.03	5.92	14.05*	
Ameristand 403T	5.0	100	100	100	98	98	8.04	1.71	1.51	0.99	0.65	1.09	5.94	13.98*	
Withstand	4.8	100	100	100	98	98	7.84	1.68	1.54	1.11	0.75	0.99	6.07	13.91*	
Saranac AR (certified)	4.8	100	100	96	96	96	7.86	1.58	1.43	1.08	0.65	1.08	5.83	13.68	
Arc (certified)	4.9	100	100	96	94	95	7.40	1.54	1.44	1.00	0.63	1.07	5.68	13.08	
<b>Experimental Varieties</b>															
CW 085028	5.0	100	100	100	100	100	8.04	1.58	1.67	1.30	0.83	1.08	6.47	14.51*	
CW 065030	4.8	100	100	100	100	100	7.81	1.58	1.66	1.29	0.76	1.08	6.37	14.18*	
GA-ALFG-1	5.0	100	99	97	97	96	7.21	1.53	1.47	1.09	0.55	0.99	5.63	12.84	
Mean	4.8	99	100	99	98	98	8.02	1.64	1.54	1.14	0.70	1.06	6.08	14.10	
CV,%	6.2	1	1	2	2	2	7.46	8.44	10.64	11.89	16.34	12.28	8.38	6.92	
LSD,0.05	0.4	2	1	3	2	3	0.86	0.20	0.23	0.19	0.16	0.19	0.73	1.40	

<sup>1</sup> 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.

upright, unlike those with symptoms of damping off. In established plants, root symptoms are not as well defined as those for phytophthora root rot, but brown lesions on the taproot indicate where lateral roots were destroyed. This disease can be associated with phytophthora root rot, and together they may form a root disease complex. Aphanomyces root rot is known to affect new seedlings

in Kentucky, but it is unclear how it affects established alfalfa. In years with overly cool and wet spring weather, alfalfa stands have suffered great damage due to aphanomyces when planted with varieties susceptible to this disease.

Certain alfalfa varieties are reported to have resistance to sclerotinia crown and stem rot; however, research at the University of Kentucky has shown that

some of these varieties have only limited resistance when conditions are ideal for disease development. Therefore, the best prevention against sclerotinia is to plant by mid-August if fall seeding or plant in the spring. If seeding in the fall, sclerotinia-resistant varieties can provide additional insurance.

**Seed quality.** Buy premium-quality seed that is high in germination and

**Table 5. Dry matter yields, seedling vigor and stand persistence of Roundup Ready alfalfa varieties sown August 9, 2012 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Sep 27, 2012	Percent Stand					Yield (tons/acre)								2-year Total
		2012		2013		2014		2013		2014					
		Sep 27	Mar 20	Sep 26	Apr 1	Oct 6	Total	May 8	Jun 10	Jul 17	Aug 15	Sep 18	Total		
<b>Commercial Varieties—Available for Farm Use</b>															
Tonnica RR	4.6	100	100	100	97	96	6.37	1.36	1.53	1.25	0.82	1.08	6.05	12.42*	
6516R RR	4.8	99	99	99	98	97	5.87	1.27	1.56	1.40	0.89	1.09	6.21	12.08*	
WL 372HQ RR	4.1	100	100	100	98	99	5.92	1.30	1.48	1.25	0.85	1.01	5.88	11.80*	
Stratica RR	3.6	94	95	95	91	96	6.10	1.38	1.50	1.07	0.69	1.00	5.64	11.74*	
DKA46-16 RR	4.5	99	100	100	99	100	5.90	1.38	1.48	1.01	0.73	1.00	5.61	11.51*	
AphaTron RR	4.3	100	100	100	99	98	5.66	1.26	1.49	1.16	0.67	0.92	5.50	11.16*	
Ameristand 405T RR	4.5	100	100	100	99	98	5.92	1.31	1.43	0.92	0.69	0.81	5.15	11.08	
WL 355 RR	3.9	99	100	100	97	99	5.46	1.31	1.51	0.93	0.76	1.02	5.54	10.99	
Ameristand 455TQ RR	4.1	100	100	100	99	99	5.61	1.32	1.50	1.03	0.60	0.89	5.33	10.94	
54R02 RR	4.5	94	96	97	97	97	5.45	1.32	1.53	1.04	0.70	0.88	5.46	10.91	
Consistency 4.10 RR	4.1	98	98	98	97	98	5.62	1.27	1.39	0.88	0.74	0.97	5.25	10.87	
DKA41-18 RR	4.1	98	99	99	95	97	5.45	1.30	1.43	0.90	0.73	1.04	5.41	10.87	
WL 356HQ RR	4.1	100	100	100	97	97	5.50	1.19	1.34	1.11	0.66	0.87	5.17	10.66	
Ameristand 433T RR	3.4	92	94	93	91	92	5.27	1.33	1.43	0.91	0.59	0.90	5.18	10.45	
Alfagrazie 300 RR	3.6	97	98	98	96	97	4.89	1.28	1.27	0.76	0.64	0.98	4.92	9.80	
Mean	4.2	98	98	98	96	97	5.67	1.31	1.46	1.04	0.72	0.96	5.48	11.15	
CV,%	14.9	2	2	2	2	2	10.03	13.04	11.39	23.49	19.50	16.34	10.36	8.46	
LSD,0.05	0.9	3	2	2	3	2	0.81	0.24	0.24	0.35	0.20	0.22	0.81	1.35	

<sup>1</sup> 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.

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, 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 and 2014) and Princeton (2009, 2011 and 2013) 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.

## 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 and 14. 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).

**Table 6. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown April 10, 2014 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> May 27, 2014	Percent Stand		Yield (tons/acre)		
		2014		2014		
		May 27	Oct 6	Jul 18	Sep 18	Total
<b>Commercial Varieties—Available for Farm Use</b>						
Fierce	4.3	95	92	0.41	1.10	1.51*
Ameristand 403T	3.5	94	88	0.46	1.01	1.47*
Saranac AR (certified)	3.8	95	92	0.40	0.96	1.36*
Bulldog 505	3.5	93	85	0.32	0.83	1.16*
Contender	3.5	94	91	0.36	0.75	1.10*
Caliber	3.5	95	91	0.35	0.71	1.06*
Evermore	3.3	85	86	0.30	0.73	1.03*
L-455HD	4.0	94	87	0.24	0.52	0.76
<b>Experimental Varieties</b>						
AFX095005	3.8	92	89	0.37	0.80	1.18*
NF11ALF006	3.5	88	78	0.36	0.80	1.16*
LS 905	3.3	86	89	0.36	0.75	1.11*
AM-09-600	3.5	93	85	0.38	0.71	1.09*
AFX095026	4.0	97	95	0.32	0.58	0.90
AM-14-900	3.5	87	79	0.29	0.47	0.77
Mean	3.6	92	87	0.35	0.77	1.12
CV, %	35.0	9	12	37.48	41.44	37.91
LSD, 0.05	2.0	12	15	0.19	0.45	0.61

<sup>1</sup> 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 7. Dry matter yields, seedling vigor and stand persistence of Roundup Ready alfalfa varieties sown April 10, 2014 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> May 27, 2014	Percent Stand		Yield (tons/acre)		
		2014		2014		
		May 27	Oct 6	Jul 18	Sep 18	Total
<b>Commercial Varieties—Available for Farm Use</b>						
AphaTron RR	4.0	95	95	0.50	0.87	1.37*
Ameristand 405T RR	3.8	89	91	0.44	0.91	1.36*
WL 373HQ RR	3.8	96	97	0.49	0.75	1.24*
Ameristand 433T RR	3.5	93	94	0.33	0.76	1.09*
55VR06 RR	3.3	94	94	0.38	0.67	1.04*
428 RR	2.5	79	84	0.29	0.69	0.98*
Alfagraz 600 RR	3.3	88	91	0.32	0.66	0.98*
6516R RR	3.8	95	95	0.35	0.58	0.93*
Alfagraz 300 RR	2.8	94	91	0.28	0.57	0.85*
54R02 RR	3.5	90	85	0.26	0.59	0.84
Tonnica RR	3.3	91	91	0.26	0.56	0.83
DKA46-16 RR	3.3	96	95	0.25	0.48	0.73
Mean	3.4	91	92	0.35	0.67	1.02
CV, %	30.8	8	8	50.67	32.63	35.48
LSD, 0.05	1.5	11	11	0.25	0.32	0.52

<sup>1</sup> 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.

Experimental varieties are listed separately at the bottom of the tables and are not available commercially. Yields are given by cutting date for 2014 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. Variet-

ies 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 at a given location. The Coefficient of Variation (CV), a measure of the variability of the data, is included for each column of means. Low variability is desirable; increased variability within a study results in higher CVs and larger LSDs.

Table 12 summarizes information about fall dormancy, disease resistance, and yield performance across years and locations for all the varieties included in the tests discussed in this report. Varieties are listed in alphabetical order with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use; commercial varieties can be purchased through dealerships. In Table 12, open blocks indicate the variety was not in that particular test (labeled at the top of the column); an X means the variety was in the test but yielded significantly less than the top-yielding variety. A single asterisk (\*) means the variety was not significantly different from the top-yielding variety based on the 0.05 LSD. It is best to choose a variety that has performed well over several years and locations as indicated by the asterisks.

Table 13 is a summary of yield data from 2000 to 2014 of commercial varieties that have been entered in the 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. Direct statistical comparisons of varieties cannot be made using the summary Table 13, 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; others may have performed well in wet years or on particular soil types. These details may influence variety choice, and the information can be

**Table 8. Dry matter yields and stand persistence of alfalfa varieties [including Roundup Ready (RR) sown April 7, 2011 at Princeton, Kentucky.**

Variety	Yield (tons/acre)												4-year Total					
	Percent Stand			2012			2013			2014				2011 Total	2012 Total	2013 Total	2014 Total	
	Jun 14	Oct 24	Mar 21	Oct 29	Mar 19	Oct 8	Apr 4	Oct 22	Total	May 20	Jun 18	Jul 16	Aug 14	Sep 17	Total			
<b>Commercial Varieties—Available for Farm Use</b>																		
WL 354HQ	99	100	100	100	98	93	75	91	2,03	4.50	7.27	1.43	1.30	0.81	0.39	0.89	4.81	18,60*
Ameristand 403T	96	96	96	96	94	91	55	71	1,92	4.56	6.97	1.13	1.05	0.55	0.37	0.82	3.92	17,38*
Consistency 4.10 RR	99	97	98	97	98	83	51	78	1,61	4.77	7.12	0.98	1.14	0.68	0.21	0.77	3.77	17,27*
Charger	95	97	97	98	97	84	58	75	1,79	4.76	6.76	1.06	1.07	0.64	0.33	0.80	3.90	17,21*
54R02 RR	92	95	97	96	94	85	51	63	1,57	4.69	7.18	0.96	0.97	0.62	0.34	0.63	3.52	16,97*
Ameristand 407TQ	96	96	98	95	94	83	54	63	1,46	4.74	7.06	0.99	1.03	0.56	0.32	0.63	3.54	16,81*
Gunner	96	97	98	96	96	69	50	61	1,80	4.77	7.05	0.73	0.92	0.54	0.37	0.50	3.05	16,67
Radiance HD	95	97	97	96	95	90	56	73	1,67	4.63	6.71	0.94	1.05	0.66	0.35	0.63	3.63	16,64
DG4210	97	99	98	97	97	89	70	83	1,62	4.34	6.69	1.04	1.16	0.65	0.37	0.59	3.82	16,47
Rebound 6.0	98	99	99	98	98	86	68	83	1,60	4.20	6.67	1.13	1.20	0.70	0.34	0.58	3.95	16,42
Lancer	91	95	96	95	95	80	40	50	1,57	4.84	6.83	0.78	0.81	0.40	0.41	0.70	3.10	16,35
Alfagraz 300 RR	94	94	95	94	91	84	50	70	1,54	4.35	6.73	0.97	1.01	0.55	0.30	0.74	3.57	16,19
WL 355 RR	96	97	99	98	96	85	56	69	1,49	4.52	6.86	0.74	0.92	0.56	0.47	0.61	3.31	16,18
Caliber	96	97	97	93	79	49	63	1,69	4.44	6.68	0.89	1.01	0.49	0.25	0.65	3.28	16,09	
L-449Aph2	98	99	99	97	92	59	75	1,74	4.25	6.34	0.90	1.06	0.62	0.32	0.58	3.49	15,81	
DKA41-18 RR	96	97	97	97	94	86	59	63	1,55	4.21	6.52	0.99	0.98	0.53	0.34	0.63	3.48	15,76
Phoenix	93	94	94	97	93	76	30	43	1,82	4.56	6.69	0.46	0.59	0.33	0.23	0.52	2.13	15,20
Ameristand 405T RR	99	98	100	99	98	94	60	78	1,47	3.99	6.12	1.04	0.98	0.62	0.35	0.63	3.62	15,20
Withstand	95	93	93	92	61	21	34	1,50	4.14	6.37	0.50	0.61	0.31	0.15	0.49	2.08	14,09	
Saranaac AR (certified)	98	97	96	94	90	43	14	24	1,48	4.55	6.19	0.41	0.42	0.15	0.22	0.41	1.54	13,26
<b>Experimental Varieties</b>																		
FG R47M120 RR	92	95	98	96	89	64	82	1,61	4.83	7.13	1.13	1.16	0.77	0.43	0.69	4.17	17,75*	
FG R47M312 RR	95	97	97	97	93	76	87	1,47	4.32	7.03	1.24	1.16	0.70	0.35	0.66	4.12	16,93*	
TS4013	99	98	98	97	86	43	71	1,88	4.67	6.95	0.63	0.89	0.47	0.45	0.78	3.22	16,71	
FG R46M162 RR	98	95	96	96	96	89	51	75	1,41	4.24	6.84	1.07	0.98	0.59	0.29	0.74	3.67	16,15
FG R47M319 RR	97	98	99	98	97	93	60	63	1,54	4.44	6.64	0.93	0.99	0.57	0.33	0.68	3.50	16,12
Mean	96	97	97	95	95	83	53	67	1,63	4.49	6.78	0.93	0.98	0.57	0.33	0.65	3.47	16,36
CV%	3	3	3	4	14	32	26	17	24	25	0.43	0.58	0.71	0.42	0.32	20.34	23.58	20.62
LSD 0.05	5	5	4	5	4	5	17	24	1,48	4.55	6.19	0.41	0.42	0.15	0.22	0.41	1.54	13,26

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

found in the yearly reports. See the Table 13 footnote to determine to which yearly report to refer.

## Summary

Consistent production of high yields of alfalfa is the result of good variety selection along with the implementation of good management techniques. For further information about 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 Web site at [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage).

- Alfalfa: The Queen of the Forage Crops (AGR-76)
- Establishing Forage Crops (AGR-64)
- Inoculation of Forage Legumes (AGR-90)
- Grain and Forage Crop Guide for Kentucky (AGR-18)
- Lime and Fertilizer Recommendations (AGR-1)
- Weed Control Strategies for Alfalfa and Other Forage Legume Crops (AGR-148)
- Insect Management Recommendations for Field Crops and Livestock (ENT-17)
- Kentucky Plant Disease Management Guide for Forage Legumes (PPA-10D)
- Alfalfa Hay: Quality Makes the Difference (AGR-137)
- “Emergency” Inoculation for Poorly Nodulated Legumes (PPFS-AG-F-04)
- Growing Alfalfa in the South, a publication of the National Alfalfa & Forage Alliance, [www.alfalfa.org/pdf/alfalfainthesouth.pdf](http://www.alfalfa.org/pdf/alfalfainthesouth.pdf)
- Alfalfa Management Guide, [www.crops.org/files/publications/alfalfa-management-guide.pdf](http://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](http://www.alfalfa.org/pdf/AlfalfaAnalyst.pdf)

## About the Authors

G.L. Olson is a research specialist and S.R. Smith and G.D. Lacefield are Extension professors in Forages.

**Table 9. Dry matter yields and stand persistence of Roundup Ready alfalfa varieties sown April 7, 2011 at Princeton, Kentucky.<sup>1</sup>**

Variety	Percent Stand												Yield (tons/acre)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
2011			2012			2013			2014			2011			2012		2013		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086
<th rowspan

**Table 10. Dry matter yields, seedling vigor and stand persistence of Roundup Ready alfalfa varieties sown April 9, 2013 at Princeton, Kentucky.<sup>1</sup>**

Variety	Seedling Vigor <sup>2</sup> May 15, 2013	Percent Stand				Yield (tons/acre)						
		2013		2014		2013	2014				2-year Total	
		May 15	Oct 8	Apr 4	Oct 22	Total	May 20	Jun 18	Jul 16	Aug 14	Sep 17	Total
<b>Commercial Varieties—Available for Farm Use</b>												
428 RR	2.8	96	96	81	95	2.66	1.85	1.94	1.16	0.64	0.79	6.37
WL 372HQ RR	3.5	98	83	59	87	2.38	1.85	1.80	0.91	0.55	0.68	6.21
6516R RR	4.1	99	77	45	72	2.32	1.91	1.74	0.73	0.50	0.61	6.29
DKA46-16 RR	3.8	97	85	70	83	2.22	1.90	1.76	0.82	0.41	0.58	5.84
AphaTron RR	4.1	98	91	60	89	2.67	1.59	1.60	0.89	0.59	0.67	5.64
Tonnica RR	3.6	98	95	74	91	2.42	1.75	1.60	0.97	0.55	0.76	5.62
Ameristand 455TQ RR	3.9	100	96	72	96	2.49	1.66	1.51	1.00	0.57	0.75	5.48
Alfagraze 300RR	2.6	76	86	70	86	2.66	2.00	1.39	0.84	0.43	0.54	5.20
Stratica RR	3.0	96	97	88	95	2.36	1.72	1.66	0.92	0.55	0.62	5.47
WL 356HQ RR	3.1	96	95	55	93	2.61	1.62	1.47	0.89	0.54	0.69	5.20
Ameristand 405T RR	3.0	96	94	70	93	2.57	1.61	1.57	0.87	0.39	0.67	5.11
Ameristand 433T RR	3.1	95	93	60	87	2.43	1.55	1.46	0.77	0.45	0.66	4.89
Mean	3.4	95	91	67	89	2.48	1.74	1.61	0.90	0.51	0.67	5.56
CV,%	24.2	12	13	34	13	13.40	15.43	13.47	24.34	28.06	24.11	10.46
LSD,0.05	1.0	16	16	33	16	0.48	0.40	0.34	0.31	0.21	0.23	0.91
												1.22

<sup>1</sup> This trial was sprayed with Roundup twice in 2013 and twice in 2014.<sup>2</sup> 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 11. Dry matter yields and stand persistence of alfalfa varieties sown August 23, 2013 at Princeton, Kentucky.**

Variety	Percent Stand				Yield (tons/acre)						
	2013		2014		2014						
	Sep 17	Apr 4	Oct 22	May 20	Jun 18	Jul 16	Aug 14	Sep 17	Total		
<b>Commercial Varieties—Available for Farm Use</b>											
GA-535	100	100	100	2.81	2.65	1.46	1.12	0.95	8.99*		
FSG 424	100	100	100	2.77	2.31	1.57	1.14	1.17	8.96*		
55V50	100	100	100	2.84	2.48	1.49	0.98	1.03	8.81*		
DG 4210	100	99	100	2.90	2.34	1.40	0.95	0.97	8.56*		
Bulldog-505	100	100	100	2.81	2.36	1.43	0.92	1.01	8.52*		
FSG 403LR	100	100	100	2.86	2.45	1.42	0.79	0.85	8.36*		
Saranac AR (certified)	100	96	100	2.80	2.33	1.21	0.87	0.95	8.16*		
L455HD	100	99	100	2.71	2.23	1.40	0.90	0.90	8.14*		
Arc (certified)	100	98	99	2.98	2.39	1.19	0.72	0.76	8.05*		
FSG 524	100	99	98	2.68	2.25	1.29	0.80	0.86	7.87*		
Optimus	100	100	100	2.84	2.14	1.25	0.71	0.80	7.74*		
Ameristand 403T	100	100	100	2.85	2.22	1.21	0.66	0.79	7.74*		
Buffalo	94	85	93	2.69	2.26	1.05	0.61	0.81	7.42		
<b>Experimental Varieties</b>											
GA-ALFG-1	100	100	100	2.83	2.55	1.28	0.77	0.93	8.36*		
CW104038	100	100	100	2.87	2.35	1.15	0.69	0.96	8.01*		
LS 804	100	100	99	2.72	2.22	1.34	0.79	0.90	7.97*		
LS 905	100	100	100	2.71	2.08	1.32	0.95	0.86	7.92*		
Mean	100	98	99	2.80	2.33	1.32	0.84	0.91	8.21		
CV,%	3	7	3	8.01	11.37	17.60	37.99	22.88	12.29		
LSD,0.05	4	11	4	0.32	0.38	0.33	0.46	0.30	1.44		

\*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. (RR designates Roundup Ready varieties)**

Variety	Proprietor	Variety Characteristics <sup>1</sup>										Lexington										Princeton									
		FD <sup>4</sup>		Disease Resistance <sup>2</sup>		2011 <sup>3</sup>		2012		2012 <sup>5</sup>		2014		2014 <sup>5</sup>		2009		2010		2011		2011 <sup>5</sup>		2013		2013					
		Bw	Fw	An	PRR	APH	12	13	14	13	14	14	14	14	14	09	10	11	12	13	14	11	12	13	14	11	12	13	14	13	14
<b>Commercial Varieties—Available for Farm Use</b>																															
4030	Brett Young	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
428 RR	Allied Seed, L.L.C.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	x <sup>6</sup>	X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
53H92	Pioneer Hi-Bred	3	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
54R02 RR	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
54Q32	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
55V48	Pioneer Hi-Bred	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
55V50	Pioneer Hi-Bred	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
55VR06 RR	Dupont Pioneer	-	-	-	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
6516R RR	NEXGROW	5	HR	-	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
A4535	Producers Choice	4	HR	HR	R	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Adrenalin	Brett Young	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Alfagraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Alfagraze 600 RR	America's Alfalfa	6	-	R	HR	R	R	R	R	R	R	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Ameristand 403T	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	X	*	*	*	*	*	X	X	X	*	*	*	*	*	*	*	*		
Ameristand 403TP Plus	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
Ameristand 407TQ	America's Alfalfa	4	HRT	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
Ameristand 433T RR	America's Alfalfa	3	HR	R	R	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
Ameristand 455TQ RR	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
Aphatron RR	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Arc (certified)	Public	4	LR	MR	HR	-	*	X	X	X	X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	*	*	*	*	*	*	*	*	*			
Buffalo	Public	-	-	-	-	-	X	X	X	X	X	*	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X			
Bulldog-505	Univ. of Georgia	5	HR	-	R	-	R	-	R	-	R	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	X	*	*	*	*	*	X	*	*	*	*	*	*	*	*	*	*		
Contender	Beck's Hybrids	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
DKA 41-18 RR	Monsanto	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
DKA 46-16 RR	Monsanto	-	-	-	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
DG 4210	Crop Production	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Evermore	Allied Seed, L.L.C.	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Fierce	Beck's Hybrids	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
FSG 403LR	Farm Science Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
FSG 424	Farm Science Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
FSG 524	Farm Science Genetics	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
GA 535	Preferred Alfalfa Genetics	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Gunner	Croplan Genetics	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
KingFisher 243	Cal/West Seeds	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
KingFisher 4020	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Lancer	Allied Seed, L.L.C.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		
L449Aph2	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	*	*	*	*	*	*	*	X	X	*	*	*	*	*	*	*	*	*		

continued

Table 12. (continued)

Variety	Proprietor	Variety Characteristics <sup>1</sup>												Lexington												Princeton											
		Disease Resistance <sup>2</sup>				2011 <sup>3</sup>				2012				2013 <sup>4</sup>				2009				2014 <sup>5</sup>				2011				2012				2013			
FD <sup>4</sup>	Bw	Fw	An	PRR	APH	12	13	14	13	14	14	13	14	14	14	09	10	11	12	13	14	11	12	13	14	11	12	13	14	13	14	14	14				
L-455HD	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	X																	*				
Optimus	Brett Young	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																		*				
Phoenix	FFR/Southern States	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
RadianceHD	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
Rebound 5.0	CropLan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
Rebound 6.0	CropLan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
Saranac AR (certified)	Public	4	MR	R	HR	LR	-	X	X	X	X	*	*	*	*																			*			
Stratica RR	CropLan Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	X				
6422Q	NEXGROW	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
TripleTrust 500	Central Farm Supply	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
Tonica RR Withstand	FFR/Southern States	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
WL 354HQ	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
WL 355RR	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
WL 356HQ RR	W-L Research	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	X																			
WL 363HQ	W-L Research	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
WL 372HQ RR	W-L Research	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
WL 373HQ RR	W-L Research	-	-	-	-	-	-	-	-	-	-	-	-	-	-		*																				
<b>Experimental Varieties</b>																																					
AFX095005	Alforex Seeds	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*																				
AFX095026	Alforex Seeds	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		X																				
AM-09-600	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*																				
AM-14-900	Ampac Seed/Cisco	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		X																				
BYEXP 7/23	Brett Young	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
CW 055023/PGI 557	Producers Choice	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		X	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
CW 065030	Beck's Hybrids	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		X	*																			
CW 085028	Cal/West Seeds	5	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*																			
CW104038	Producers Choice	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
FG R46M162 RR	Forage Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
FG R47M120 RR	Forage Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
FG R47M1312 RR	Forage Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
FG R47M1319 RR	Forage Genetics	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
GA-ALFG-1	Univ. of Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-		X	X																			
GA-APG C	Univ. of Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-																						
GA-MPX	Univ. of Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-																						
LS 804	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
LS 905	Legacy Seeds, Inc.	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						
NF11ALF006	Noble Foundation	6	-	-	-	-	-	-	-	-	-	-	-	-	-																						
TS 4013	Producers Choice	4	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR																						

<sup>1</sup> Variety characteristics: FD = fall dormancy, Bw = bacterial wilt, Fw = fusarium wilt, An = anthracnose, PRR = phytophthora root rot, APH = aphanothaea root rot. Information provided by seed companies.

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

<sup>3</sup> Establishment year.

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

<sup>5</sup> These are Roundup Ready alfalfa trials.

<sup>6</sup> 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. Summary of Kentucky alfalfa yield trials 2000-2014 (yield shown as a percentage of the mean of the commercial varieties in the test).**

Variety	Proprietor	Variety Characteristics <sup>1</sup>										Lexington										Princeton										Mean <sup>7</sup> (# trials)	
		Disease Resistance <sup>3</sup>										Lexington										Princeton											
		FD	Bw	Fw	An	PRR	APH	00 <sup>4,5</sup>	02	04	06	08	11	01	05	08	09	11	11 <sup>6</sup>	03	06	03	06	03	06	03	06	03	06				
A-4440	Producers Choice	4	HR	HR	HR	HR	HR	00 <sup>4,5</sup>	02	04	06	08	11	01	05	08	09	11	11 <sup>6</sup>	03	06	03	06	03	06	03	06	03	06	97(2)			
A 5225	Producers Choice	5	HR	HR	HR	HR	HR	5yr <sup>8</sup>	5yr	5yr	5yr	5yr	5yr	01	05	08	09	11	11 <sup>6</sup>	03	06	03	06	03	06	03	06	03	06	100(2)			
AC Longview	Newfield Seeds	-	HR	-	-	-	-							104																	106(2)		
Adrenalin	Brett Young Seeds	4	HR	HR	HR	HR	HR																								-		
Afegraze 300 RR	America's Alfalfa	3	HR	R	HR	HR	HR																								-		
Ameristand 403T	America's Alfalfa	3	HR	HR	HR	HR	HR																								99(7)		
Ameristand 403T Plus	America's Alfalfa	4	HR	HR	HR	HR	HR																								-		
Ameristand 405T RR	America's Alfalfa	4	HR	HR	HR	HR	HR																								96(2)		
Ameristand 407TQ	America's Alfalfa	4	HR	HR	HR	HR	HR																								104(2)		
Anchormate	ProSeed Marketing	-	-	-	-	-	-																								-		
Arc (certified)	Public	4	LR	MR	-	-	-																								92(8)		
Archer III	America's Alfalfa	5	HR	HR	HR	HR	HR																								-		
Baralfa 53HR	Barenbrug USA	5	HR	R	HR	HR	HR																								-		
Buffalo	Public	-	-	-	-	-	-																								-		
Bulldog-505	Univ. of GA	5	-	HR	-	R	-																								86(10)		
Caliber	Beck's Hybrids	4	HR	HR	HR	HR	HR																								-		
Charger	Beck's Hybrids	5	HR	HR	HR	HR	HR																								-		
Consistency 4.10 RR	Croplan Genetics	4	HR	HR	HR	HR	HR																								-		
DK 140	Monsanto	4	HR	HR	HR	HR	HR																								103(2)		
DKA-41-18RR	Monsanto	4	HR	HR	HR	HR	HR																								98(2)		
DKA 43-13	Monsanto	4	HR	HR	HR	HR	HR																								101(3)		
DKA 50-18	Monsanto	5	HR	HR	HR	HR	HR																								-		
DG4210	Crop Production	4	HR	HR	HR	HR	HR																								-		
Dynagro Everlast	United Agr. Prod.	4	HR	HR	HR	HR	HR																								101(2)		
Enforcer	FFR/So. States.	4	HR	HR	HR	HR	HR																								86(2)		
Escalade	Allied Seeds	5	HR	HR	HR	HR	HR																								-		
Evermore	FFR/So. States.	5	HR	HR	HR	HR	HR																								103(3)		
Expedition	NEXGROW	5	HR	HR	R	RR	R																								105(3)		
Feast+EV	NEXGROW	3	HR	HR	HR	HR	HR																								101(3)		
FSG 406	Allied Seeds	4	HR	HR	HR	HR	HR																								-		
FSG 408DP	Allied Seeds	4	HR	HR	HR	HR	HR																								108(2)		
FSG 505	Allied Seeds	5	HR	HR	HR	HR	HR																								107(2)		
FSG 528SF	Lewis Seed Co.	5	HR	R	HR	HR	HR																								-		
Geneva	NEXGROW	4	HR	HR	HR	HR	HR																								104(3)		
Genoa	NEXGROW	4	HR	HR	HR	HR	HR																								107(4)		
GH744	NEXGROW	4	HR	HR	HR	HR	HR																								-		
Gunner	Croplan Genetics	5	HR	HR	HR	HR	HR																								-		
Integrity	PGL Alfalfa	4	HR	HR	HR	HR	HR																								-		
KingFisher 243	Cal/West	5	HR	HR	HR	HR	HR																								-		
KingFisher 4020	Legacy Seeds	4	HR	HR	HR	HR	HR																								-		
L447HD	Legacy Seeds	4	HR	HR	HR	HR	HR																								-		
L449Aph2	Legacy Seeds	4	HR	HR	HR	HR	HR																								-		
Lancer	Allied Seeds	4	HR	HR	HR	HR	HR																								-		
LegenDairy 5.0	Croplan Genetics	3	HR	HR	HR	HR	HR																								104(3)		
Mariner III	Allied Seeds	4	HR	HR	HR	HR	HR																								-		
Mountaineer 2.0	Croplan Gen.	5	HR	HR	HR	HR	HR																								-		
Perform	Dairyland Research	4	HR	HR	HR	HR	HR																								-		
PGI 459	Producers Choice	4	HR	HR	HR	HR	HR																								-		

continued

**Table 13.** (continued)

<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> The Bowling Green test is on soil infested with phytophthora and aphanomyces root rots.

Disease resistance:  $S = \text{susceptible}$ ,  $LR = \text{low resistance}$ ,  $MR = \text{moderate resistance}$ ,  $R = \text{resistance}$ ,  $HR = \text{high resistance}$ .

4 Year trial was established.

5 Use this summary table as a guide in

the final year of each specific test. For example, the Lexington trial planted in 2002 was harvested for 5 years, so the final

[edu/AgForage>](http://www.education.vic.gov.au/fco/curriculum/curriculum/curriculumareas/science/primary/units/agforage/index.htm)  
5 This is a Roundup Ready alfalfa trial.  
6 Mean only presented when respective variety was included in two or more trials.

**Table 14. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown April 17, 2009 at Princeton, Kentucky.**

Variety	Percent Stand												Yield (tons/acre)																										
	Seedling Vigor <sup>1</sup> May 12, 2009			2010 May 12 Oct 8			2011 Mar 12 Oct 8			2012 Mar 14 Oct 24			2013 Mar 19 Oct 29			2014 Apr 4 Oct 22			2009 Total			2010 Total			2011 Total			2012 Total			2013 Total			2014 Total			6-year Total		
	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use	Commercial Varieties—Available for Farm Use						
Archer III	3.0	98	97	95	97	100	100	99	100	99	100	100	99	88	95	153	3.57	4.96	4.54	6.83	1.12	1.25	0.69	0.40	0.52	3.99	25.41*												
Radiance HD	2.8	99	96	97	97	98	100	98	100	96	94	75	86	172	3.85	5.17	4.63	6.23	0.87	1.01	0.65	0.44	0.54	3.51	25.11*														
WL363HQ	3.5	96	96	96	98	100	100	99	98	96	94	75	87	184	3.72	5.24	4.71	6.31	0.70	1.00	0.60	0.38	0.58	3.26	25.09*														
Adrenalin	2.8	98	91	91	95	97	98	97	96	95	71	84	174	3.77	5.24	4.51	6.24	0.94	1.05	0.56	0.32	0.57	3.43	24.93*															
Ameristand 407TQ	4.3	100	97	97	99	99	98	97	96	97	96	80	93	165	3.82	5.10	4.71	5.98	0.97	1.29	0.68	0.34	0.45	3.94	24.61*														
Rebound 5.0	2.8	95	96	90	93	96	97	95	74	94	90	71	83	148	3.64	4.86	4.61	6.31	0.92	1.07	0.62	0.50	0.59	3.70	24.59*														
642QO	3.3	95	97	97	96	97	99	99	96	96	91	81	88	163	3.65	4.78	4.50	6.16	0.86	1.08	0.67	0.42	0.61	3.64	24.36*														
Ameristand 403T	3.3	98	94	94	96	98	95	96	97	95	91	73	80	209	3.85	4.94	4.11	5.30	0.74	0.84	0.46	0.24	0.29	2.80	24.24*														
KingFisher 243	1.3	94	93	92	93	99	98	97	97	96	92	75	86	144	3.16	4.81	4.50	6.17	0.81	1.08	0.65	0.41	0.58	3.54	23.61														
Bulldog-505	2.8	99	95	93	93	99	99	98	97	97	97	80	90	172	3.45	4.98	4.33	5.68	0.76	0.89	0.45	0.27	0.46	2.84	23.01														
Ameristand 403TPPlus	3.5	100	95	95	95	98	97	98	96	96	95	78	88	157	3.61	4.81	4.01	5.44	0.79	0.90	0.54	0.36	0.50	3.09	22.53														
Saranac AR (certified)	3.3	99	91	90	94	99	97	94	96	93	91	60	75	160	3.56	4.83	4.39	4.85	0.61	0.71	0.46	0.32	0.53	2.64	22.13														
Buffalo	3.3	100	91	93	94	94	91	89	94	87	83	63	70	161	3.42	4.67	3.85	4.82	0.56	0.80	0.48	0.24	0.39	2.46	20.92														
<b>Experimental Varieties</b>																																							
TS 4010/A4535	3.5	100	98	97	97	96	96	96	94	77	88	168	3.85	5.18	4.43	6.04	0.92	1.02	0.52	0.39	0.53	3.63	25.89*																
BYEXP723	3.8	98	98	97	96	98	97	96	95	98	87	93	216	4.02	5.07	4.59	5.89	0.96	1.09	0.60	0.36	0.61	3.72	25.55*															
CW 055023/PG1557	3.8	100	97	96	97	98	99	98	97	95	79	90	143	3.49	4.94	4.53	5.76	0.92	1.05	0.63	0.51	0.58	3.69	23.84*															
GA-MPX	1.8	96	92	93	96	98	96	98	97	96	83	90	142	3.12	4.38	4.10	5.84	0.88	1.06	0.52	0.31	0.51	3.48	22.82															
GA-APGC	4.0	98	91	94	97	99	97	97	97	95	77	92	163	3.34	4.85	4.14	5.54	0.80	0.85	0.44	0.19	0.48	2.91	22.49															
Mean	3.1	98	95	94	95	98	97	96	96	94	77	87	166	3.61	4.93	4.40	5.86	0.85	1.01	0.57	0.36	0.52	3.38	23.99															
CV%	37.6	4	5	4	3	2	3	11	5	5	12	11	24.87	12.72	6.50	7.93	12.39	28.41	17.83	23.71	42.23	28.77	20.07	5.68															
LSD 0.05	1.7	6	6	6	4	3	3	4	15	6	7	15	16	0.59	0.65	0.46	0.50	1.03	0.37	0.28	0.20	0.22	0.22	1.05	2.12														

<sup>1</sup> 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.



Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement and does not imply approval to the exclusion of other suitable products or firms.  
The College of Agriculture, Food and Environment is an Equal Opportunity Organization.  
11-2014