

2007 Alfalfa Report

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Introduction

Alfalfa (*Medicago sativa*) has historically been the highest yielding, highest quality forage legume grown in Kentucky. It forms the basis of Kentucky's cash hay enterprise and is an important component in dairy, horse, beef, and sheep diets. Choosing a good 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 12 shows a summary of all alfalfa varieties tested in Kentucky during the last 10 years. The UK Forage Extension Web site 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 that 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 (nondormant). In general, varieties with lower dormancy ratings are more winter-hardy but take more warm weather in the spring to initiate growth and stop growing sooner in the fall. This growth habit can, but does not necessarily, reduce 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 not winter-hardy under Kentucky conditions. Many Kentucky producers have found that FD 4 varieties provide the best combination of yield and winter survival.

Disease and Pest Resistance. In Kentucky, producers should use varieties that have at least a moderate resistance (MR) rating to phytophthora root rot (PRR), anthracnose (An), bacterial wilt (Bw), and fusarium wilt (Fw), as well as a resistance (R) rating to aphanomyces root rot (APH). Kentucky research indicates that aphanomyces root rot is a widespread problem in the state during stand establishment and that 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 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 still 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 that are susceptible to this disease.

Although certain alfalfa varieties are reported to have some resistance to sclerotinia crown and stem rot, research at the University of Kentucky has shown that many of these varieties have only marginal protection when conditions are ideal for disease development. Varieties currently in development show promise for true sclerotinia resistance.

Seed Quality. Buy premium-quality seed that is high in germination and purity and free from weed seed. Buy certified seed or proprietary seed of an improved variety. An improved variety is one that has performed well in independent trials, 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 other crop and weed seed. Order seed well in advance of planting time to assure that it will be available when needed.

Description of the Tests

Alfalfa variety tests were established at Lexington (2004 and 2006), Princeton (2005 and 2007), Eden Shale (2003), and Bowling Green (2006) as part of the forage variety testing program. Trials were planted in Lexington and Bowling Green in the spring of 2006 but failed due to poor establishment conditions. These were replanted in August of 2006. The soils at most locations are well suited to alfalfa because they are generally well-drained silt loam soils (Maury, Crider, and Nicholson at Lexington, Princeton, and Eden Shale, respectively).

Plots were 5 by 15 feet in a randomized complete block design with four replications. 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, 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, Princeton, Eden Shale, and Bowling Green are presented in Tables 1 through 4.

Yield data (on a dry matter basis) for all tests are reported in Tables 5 through 10. Stated yields are adjusted for percent 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 for 2007 and by year for each prior year of production.

Statistical analyses were performed on all alfalfa yield data (including experimentals) to determine if the apparent differences are truly 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 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 11 summarizes information about fall dormancy, disease resistance, and yield performance across years and locations for all the varieties currently 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 11, open blocks indicate that the variety was not in that particular test (labeled at the top of the column); an X means that the variety was in the test but yielded significantly less than the top-yielding variety. A single asterisk (*) means that the variety was not significantly different from the top-yielding variety based on the 5 percent LSD. It is best to choose a variety that has performed well over several years and locations as indicated by the asterisks.

Table 12 is a summary of yield data from 1995 to 2007 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 12, but these comparisons do help to identify varieties for further consideration. Varieties that have performed better than average over many years and at several locations have very stable performance; others may have performed very well in wet years or on particular soil types. These details may influence variety choice, and the information can be found in the yearly reports. See footnote in Table 12 to determine which yearly report to refer to.

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:

- AGR-76 *Alfalfa: The Queen of the Forage Crops*
- AGR-64 *Establishing Forage Crops*
- AGR-90 *Inoculation of Forage Legumes*
- AGR-18 *Grain and Forage Crop Guide for Kentucky*
- AGR-1 *Lime and Fertilizer Recommendations*
- AGR-148 *Weed Control Strategies for Alfalfa and Other Forage Legume Crops*
- ENT-17 *Insect Management Recommendations for Field Crops and Livestock*
- PPA-10D *Kentucky Plant Disease Management Guide for Forage Legumes*
- AGR-137 *Alfalfa Hay: Quality Makes the Difference*

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Table 1. Temperature and rainfall at Lexington, Kentucky in 2004, 2005, 2006 and 2007.

	2004				2005				2006				2007 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	30	-1	3.14	+0.28	37	+6	4.35	+1.49	42	+11	4.77	+1.91	37	+6	2.93	+0.07
FEB	36	+1	1.32	-1.89	39	+4	1.68	-1.53	36	+1	2.13	-1.08	27	-8	1.83	-1.38
MAR	47	+3	3.43	-0.97	41	-3	2.79	-1.61	44	0	3.05	-1.35	52	+8	1.97	-2.43
APR	55	0	3.06	-0.82	56	+1	3.30	-0.58	59	+4	3.52	-0.36	53	-2	3.87	-0.01
MAY	68	+4	9.79	+5.32	61	-3	1.78	-2.69	62	-2	2.99	-1.48	68	+4	1.45	-3.02
JUN	72	0	3.13	-0.53	75	+3	1.33	-2.33	70	-2	1.82	-1.84	74	+2	1.77	-1.89
JUL	73	-3	7.65	+2.65	77	+1	3.30	-1.70	76	0	5.13	+0.13	74	-2	6.90	+1.90
AUG	71	-4	2.91	-1.02	78	+3	3.34	-0.59	76	+1	3.23	-0.70	80	+5	2.56	-1.37
SEP	68	0	2.61	-0.59	72	+4	0.59	-2.21	64	-4	9.27	+6.07	72	+4	1.15	-2.05
OCT	58	+1	5.65	+3.08	58	+1	0.92	-1.65	54	-3	4.88	+2.31	63	+6	5.28	+2.71
NOV	49	+4	6.29	+2.90	47	+2	1.54	-1.85	47	+2	1.78	-1.61	46	+1	2.86	-0.53
DEC	36	0	3.20	-0.78	32	-4	2.19	-1.79	42	+6	2.45	-1.53				
Total			52.18	+7.63			27.51	-17.04			45.02	+0.47			32.57	-8.00

¹ DEP is departure from the long-term average.

² 2007 data is for 11 months through November.

Table 2. Temperature and rainfall at Princeton, Kentucky in 2005, 2006 and 2007.

	2005				2006				2007 ²			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	41	+7	5.30	+1.50	46	+12	5.38	+1.58	40	+6	4.89	+1.09
FEB	43	+5	2.30	-2.13	38	0	2.66	-1.77	34	-4	2.99	-1.44
MAR	47	0	4.11	-0.83	51	+4	4.22	-0.72	58	+11	1.85	-3.09
APR	60	+1	4.61	-0.19	63	+4	4.02	-0.78	58	-1	3.95	-0.85
MAY	65	-2	1.54	-3.42	66	-1	5.42	+0.46	71	+4	2.29	-2.67
JUN	76	+1	3.09	-0.76	75	0	3.39	-0.46	76	1	4.32	0.47
JUL	79	+1	2.39	-1.90	79	+1	3.79	-0.50	77	-1	1.77	-2.52
AUG	80	+3	11.54	+7.53	80	+3	2.58	-1.43	85	8	0.87	-3.14
SEP	74	+2	2.17	-1.16	67	-4	9.80	+6.47	75	4	3.52	0.19
OCT	60	+1	0.19	-2.86	57	-2	4.5	+1.45	65	+6	8.33	+5.28
NOV	50	+3	2.48	-2.15	49	+2	4.31	-0.32	49	+2	7.31	-7.32
DEC	35	-4	1.92	-3.12	44	+5	4.76	-0.28				
Total			42.55	-8.58			54.82	+3.69			37.09	-9.00

¹ DEP is departure from the long-term average.

² 2007 data is for 11 months through November.

Table 3. Temperature and rainfall at Eden Shale, Kentucky in 2004, 2005, 2006 and 2007.

	2004				2005				2006				2007 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	30	0	4.3	+1.76	35	+5	5.67	+3.13	42	+12	5.56	+3.02	36	+6	3.74	+1.20
FEB	36	+3	1.35	-1.4	39	+6	1.98	-0.77	35	+2	2.05	-0.70	26	-7	3.46	+0.71
MAR	48	+5	2.92	-1.8	40	-3	3.78	-0.94	44	+1	6.18	+1.46	51	+8	5.41	+0.69
APR	56	+2	4.32	+0.17	56	+2	3.65	-0.050	59	+5	5.23	+1.08	52	-2	5.89	+1.74
MAY	69	+6	7.8	+3.39	61	-2	2.09	-2.32	62	-1	3.57	-0.84	68	+5	0.76	-3.65
JUN	72	+1	1.66	-2.11	75	+4	1.52	-1.85	69	-2	5.07	+1.30	75	+4	2.93	-0.84
JUL	73	-2	3.37	-1.16	78	+3	3.22	-1.21	77	+2	4.4	-0.13	75	0	4.96	+0.43
AUG	71	-3	3.86	+0.13	78	+4	8.59	+4.89	77	+3	3.81	+0.08	82	+8	2.12	-1.61
SEP	69	+1	2.14	-1.05	71	+3	1.56	-1.63	65	-3	8.64	+5.45	73	+5	3.63	+0.44
OCT	58	+1	6.51	+3.52	58	+1	1.74	-1.25	54	-3	5.96	+2.97	62	+2	7.13	+4.14
NOV	49	+4	5.02	+1.47	47	+2	3.61	+0.06	47	+2	1.68	-1.87	45	0	3.14	-0.41
DEC	34	-1	3.38	-0.05	31	-4	2.8	-0.63	41	+6	3.72	+0.29				
Total			46.63	+2.87			40.61	-3.15			55.87	+12.11			43.17	+2.84

¹ DEP is departure from the long-term average.

² 2007 data is for 11 months through November.

Table 4. Temperature and rainfall at Bowling Green, Kentucky in 2006 and 2007.

	2006				2007 ²			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP
JAN	45	+11	4.89	+1.07	39	+5	4.04	+0.22
FEB	38	0	2.28	-1.85	34	-4	2.00	-2.13
MAR	49	+3	2.75	-2.35	56	+10	1.34	-3.76
APR	63	+6	4.51	+0.19	56	-1	3.65	-0.67
MAY	65	-1	3.63	-1.31	70	+4	3.57	-1.37
JUN	74	-1	2.66	-1.51	76	+1	2.65	-1.52
JUL	79	+1	3.30	-1.44	78	0	2.02	-2.72
AUG	80	+3	5.97	+2.46	85	+8	0.94	-2.57
SEP	67	-3	6.78	+3.06	75	+5	1.89	-1.83
OCT	56	-2	4.01	+0.99	64	+6	8.38	+5.36
NOV	49	+3	3.07	-1.36	48	+2	3.95	-0.48
DEC	43	+5	3.54	-1.49				
Total			47.39	-3.54			34.43	-11.47

¹ DEP is departure from the long-term average.

² 2007 data is for 11 months through November.

Table 5. Dry matter yields and stand persistence of alfalfa varieties sown Aug. 25, 2003 at the Eden Shale Farm near Owenton, Kentucky.

Variety	Percent Stand						Yield (tons/acre)						4-yr Total
	2005		2006		2007		2004	2005	2006	2007			
	Apr 12	Oct 12	Apr 7	Oct 24	Mar 28	Oct 15	Total	Total	Total	May 22	Jun 27	Total	
Commercial Varieties-Available for Farm Use													
FSG505	89	94	94	94	92	92	2.40	3.99	3.65	0.75	0.43	1.18	11.22*
WL357HQ	93	98	98	98	95	94	2.72	3.81	3.25	0.72	0.54	1.26	11.04*
Evermore	90	96	96	95	95	96	2.49	3.83	3.35	0.65	0.41	1.06	10.74*
Reward II	94	90	100	98	95	94	2.48	3.79	3.26	0.71	0.46	1.17	10.69*
54V46	94	95	94	91	90	91	2.32	3.56	3.37	0.67	0.38	1.05	10.30*
5-star	89	89	98	98	96	96	2.18	3.60	3.39	0.72	0.37	1.09	10.25*
Feast+EV	88	91	91	90	87	87	2.43	3.49	3.13	0.63	0.33	0.97	10.01*
Buffalo	78	89	91	86	81	81	2.32	3.36	3.26	0.56	0.42	0.97	9.91*
Saranac AR (certified)	79	89	89	85	80	78	2.45	3.23	3.17	0.60	0.42	1.02	9.87*
Regal	74	93	93	89	81	86	2.29	3.42	3.29	0.50	0.31	0.81	9.80*
Mean	86.5	92.3	94.1	92.1	89.2	89.3	2.41	3.61	3.31	0.65	0.41	1.06	10.38
CV,%	6.6	7.7	5.8	7.2	9.5	9.1	7.63	11.28	16.45	30.77	21.47	23.31	10.49
LSD,0.05	8.3	10.3	8.2	10.0	12.2	11.7	0.27	0.59	0.79	0.29	0.13	0.36	1.58

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

Table 6. Dry matter yields and stand persistence of alfalfa varieties sown April 7, 2004 at Lexington, Kentucky.

Variety	Percent Stand						Yield (tons/acre)							4-yr Total	
	2005		2006		2007		2004	2005	2006	2007					
	Apr 8	Oct 28	Apr 7	Oct 17	Mar 28	Oct 11	Total	Total	Total	May 23	Jun 25	Aug 8	Sep 17		Total
Commercial Varieties-Available for Farm Use															
WL357HQ	88	96	98	94	96	96	1.78	3.37	4.55	0.91	0.67	1.14	0.53	3.25	12.95*
Genoa	88	95	95	95	97	97	1.79	2.91	4.21	0.92	0.55	1.10	0.40	2.97	11.88*
6400HT	88	93	98	95	97	97	1.70	2.76	4.01	0.93	0.54	1.09	0.51	3.06	11.53*
Summer Gold	85	94	93	94	93	93	1.47	3.08	4.02	0.83	0.49	1.07	0.48	2.88	11.44
Expedition	88	88	94	93	95	95	1.70	2.83	4.20	0.81	0.45	1.04	0.35	2.65	11.38
Mountaineer 2.0	88	96	96	96	96	96	1.66	2.70	4.20	0.84	0.46	1.12	0.36	2.78	11.35
Feast+EV	85	96	96	93	93	93	1.75	2.94	3.51	0.76	0.61	1.13	0.61	3.11	11.31
FSG408DP	83	91	91	90	92	92	1.69	2.53	3.60	0.88	0.59	1.22	0.57	3.25	11.08
AC Longview	75	89	94	91	90	90	1.24	2.25	3.24	0.55	0.36	0.83	0.46	2.20	8.94
Buffalo	60	78	85	84	80	80	1.04	1.91	3.56	0.67	0.44	0.91	0.31	2.33	8.84
Arc (certified)	50	75	85	80	81	81	1.08	2.08	3.53	0.50	0.36	0.57	0.34	1.76	8.45
Saranac AR (certified)	63	85	89	84	84	84	1.34	2.09	3.18	0.48	0.32	0.62	0.32	1.73	8.35
Experimental Varieties															
50T176 (Phoenix)	88	95	95	95	96	96	1.79	3.02	4.32	0.92	0.56	1.01	0.41	2.89	12.02*
VLO2	83	95	96	91	94	94	1.88	2.45	4.00	0.74	0.48	0.95	0.45	2.63	10.96
41H158 (Enforcer)	63	83	95	93	93	93	1.19	2.57	3.97	0.56	0.37	0.91	0.28	2.11	9.84
Mean	78.0	89.8	93.0	91.1	91.6	91.6	1.54	2.63	3.87	0.75	0.48	0.98	0.42	2.64	10.69
CV,%	9.6	9.8	5.0	5.0	5.2	5.2	19.27	11.49	13.93	19.26	39.59	14.38	28.43	15.89	9.42
LSD, 0.05	10.7	12.6	6.7	6.6	6.9	6.9	0.42	0.43	0.77	0.21	0.27	0.2	0.17	0.6	1.44

* 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 alfalfa varieties sown April 15, 2005 at Princeton, Kentucky.

Variety	Seedling Vigor ¹ Jun 13, 2005	Percent Stand					Yield (tons/acre)								
		2005		2006		2007	2005		2006		2007				3-yr
		Oct 6	Apr 5	Oct 30	Apr 3	Oct 18	Total	Total	May 24	Jun 25	Jul 26	Sep 18	Total	Total	
Commercial Varieties-Available for Farm Use															
Phirst	4.8	100	99	97	98	96	2.58	6.49	0.89	0.55	1.09	0.38	2.92	11.98*	
Baralfa 53HR	5.0	100	99	97	89	91	2.62	6.50	0.74	0.58	1.04	0.38	2.75	11.87*	
WL357HQ	5.0	100	100	99	96	95	2.69	6.14	0.82	0.65	1.09	0.38	2.94	11.77*	
Dynagro Everlast	5.0	99	100	98	96	95	2.47	6.16	0.94	0.60	1.09	0.34	2.97	11.61*	
Reward II	4.5	100	100	99	97	94	2.56	5.95	1.02	0.54	1.01	0.34	2.90	11.41*	
6415	5.0	100	100	99	95	92	2.56	6.01	0.92	0.50	0.99	0.36	2.78	11.35*	
Vernal	4.8	98	100	96	89	90	2.30	6.12	0.88	0.55	1.09	0.36	2.88	11.29*	
Buffalo	5.0	99	100	99	88	94	2.47	5.89	0.91	0.47	1.03	0.40	2.81	11.17*	
LegenDairy5.0	5.0	100	100	99	97	95	2.62	5.67	0.80	0.60	1.08	0.32	2.80	11.09*	
TripleTrust450	4.8	100	100	100	95	95	2.52	5.76	0.81	0.56	1.05	0.38	2.80	11.08*	
Saranac AR (certified)	5.0	98	100	99	95	94	2.31	5.88	0.97	0.43	1.04	0.39	2.83	11.02*	
Arc (certified)	4.8	98	100	97	91	89	2.31	6.08	0.84	0.37	0.96	0.37	2.54	10.94*	
Genoa	4.8	100	98	98	87	88	2.56	5.43	0.73	0.52	0.95	0.34	2.53	10.52	
Expedition	4.8	100	98	96	90	93	2.44	5.34	0.65	0.57	1.09	0.36	2.67	10.46	
Experimental Varieties															
AA108E	5.0	98	100	99	95	96	2.50	5.86	0.86	0.61	1.09	0.39	2.95	11.31*	
A-4440	4.5	100	100	98	96	94	2.50	6.08	0.90	0.49	0.98	0.24	2.61	11.19*	
Mean	4.8	99.3	99.5	97.9	93.3	93.0	2.50	5.96	0.86	0.54	1.04	0.36	2.79	11.25	
CV,%	8.0	2.0	2.0	1.7	5.0	5.1	8.12	9.47	24.29	21.37	12.14	25.38	15.58	7.62	
LSD,0.05	0.6	2.9	2.9	2.4	6.6	6.7	0.29	0.80	0.30	0.16	0.18	0.13	0.62	1.22	

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

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

Table 8. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown August 14, 2006 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 17, 2006	Percent Stand			Yield (tons/acre)				
		2006		2007	2007				
		Oct 17	Mar 26	Oct 11	May 23	Jun 26	Aug 8	Sep 17	Total
Commercial Varieties-Available for Farm Use									
L447HD	4.8	76	96	95	1.03	0.78	1.75	0.70	4.26*
DKA41-18RR	4.3	99	98	98	1.17	0.66	1.68	0.55	4.06*
Expedition	5.0	99	98	98	0.87	0.78	1.71	0.62	3.98*
WL355RR	4.8	98	96	96	1.00	0.68	1.63	0.58	3.90*
Radiant-AM	5.0	100	97	96	0.99	0.59	1.64	0.58	3.79*
Ameristand 403t	5.0	100	98	98	0.95	0.62	1.62	0.52	3.69
WL343HQ	4.3	99	100	100	0.93	0.66	1.51	0.58	3.69
Buffalo	5.0	99	99	98	0.80	0.62	1.70	0.55	3.67
Phoenix	4.8	99	98	98	0.88	0.67	1.51	0.59	3.64
LegenDairy5.0	5.0	100	95	95	0.93	0.64	1.44	0.52	3.53
Withstand	4.8	100	97	98	0.91	0.56	1.45	0.57	3.50
SaranacAR	4.8	100	96	96	0.96	0.42	1.57	0.51	3.46
Experimental Varieties									
BPR387	5.0	100	98	98	1.12	0.71	1.67	0.62	4.12*
DS617	5.0	99	97	97	0.90	0.72	1.60	0.60	3.82*
Mean	4.8	97.6	97.3	97.2	0.96	0.65	1.61	0.58	3.79
CV,%	7.6	12.3	2.7	2.8	19.35	15.82	11.26	15.63	9.36
LSD,0.05	0.5	17.2	3.8	3.9	0.27	0.15	0.26	0.13	0.51

¹ 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 9. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown August 24, 2006 at Bowling Green, Kentucky.

Variety	Seedling Vigor ¹ Oct 30, 2006	Percent Stand			Yield (tons/acre)			
		2006	2007		2007			
		Oct 30	Mar 16	Oct 29	May 14	Jun 14	Jul 25	Total
Commercial Varieties-Available for Farm Use								
Withstand	4.8	99	100	99	0.89	0.26	0.47	1.62*
Evermore	4.8	100	100	99	0.77	0.20	0.36	1.33*
Rebound 5.0	4.5	100	100	98	0.78	0.20	0.30	1.28*
TripleTrust 450	5.0	100	99	99	0.63	0.19	0.37	1.19
CW 15030	5.0	100	99	98	0.64	0.16	0.37	1.17
Integrity	5.0	100	100	100	0.63	0.18	0.36	1.16
WL 348AP	4.8	99	100	98	0.59	0.21	0.34	1.14
DynaGro Everlast	5.0	100	100	99	0.68	0.11	0.31	1.10
Phoenix	4.8	99	99	98	0.61	0.17	0.28	1.06
6415	5.0	100	100	100	0.62	0.15	0.28	1.05
LegenDairy 5.0	4.8	100	100	98	0.58	0.12	0.33	1.03
Buffalo	4.3	100	99	99	0.69	0.07	0.25	1.01
Enforcer	4.0	97	96	97	0.57	0.14	0.26	0.98
Phirst	4.8	100	99	98	0.46	0.19	0.33	0.98
Saranac AR (certified)	4.5	100	100	98	0.53	0.08	0.28	0.89
Experimental Varieties								
MP04	4.8	100	100	100	0.68	0.15	0.40	1.23*
AA109E	4.5	99	100	100	0.57	0.19	0.33	1.09
Mean	4.7	99.5	99.2	98.6	0.64	0.16	0.33	1.14
CV,%	9.4	1.6	1.0	1.8	37.05	39.27	21.97	26.19
LSD,0.05	0.6	2.3	1.4	2.5	0.34	0.09	0.10	0.42

¹ 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 10. Dry matter yields, seedling vigor and stand persistence of alfalfa varieties sown April 3, 2007 at Princeton, Kentucky.

Variety	Seedling Vigor ¹ May 8, 2007	Percent Stand		Yield (tons/acre)			
		2007		2007			
		May 8	Oct 18	Jun 15	Jul 25	Sep 18	Total
Commercial Varieties-Available for Farm Use							
USG681HY	4.5	99	89	0.26	0.47	0.18	.92*
Buffalo	2.8	99	91	0.24	0.47	0.17	.89*
Arc (certified)	3.5	98	84	0.23	0.44	0.19	.86*
A5225	3.5	98	80	0.20	0.46	0.19	.85*
FSG408DP	3.0	98	91	0.22	0.44	0.18	.84*
Mariner III	1.8	95	74	0.17	0.43	0.19	.79*
WL343HQ	2.5	98	89	0.19	0.40	0.18	.77*
Ameristand 403t	2.3	97	78	0.21	0.40	0.15	.76*
Saranac AR (certified)	1.8	96	78	0.20	0.35	0.19	.74*
Phoenix	2.0	96	84	0.16	0.43	0.15	.74*
Genoa	3.5	99	86	0.20	0.37	0.14	.70*
Withstand	1.8	95	71	0.14	0.34	0.14	0.62
Experimental Varieties							
CW 24027	3.3	97	85	0.19	0.43	0.17	.79*
TS4027	2.3	95	86	0.18	0.42	0.16	.77*
Mean	2.7	97.0	83.2	0.20	0.42	0.17	0.79
CV,%	30.2	2.4	16.5	29.05	27.13	30.20	24.94
LAS,0.05	1.2	3.3	19.6	0.08	0.16	0.07	0.28

¹ 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. Characterization and performance of alfalfa varieties across years and locations.

Variety	Variety Characteristics ¹	Lexington							Princeton				Eden Shale			Bowling Green					
		Disease Resistance ²					2004 ³		2006	2005		2007	2003			2006					
		FD ⁴	Bw	Fw	An	PRR	APH	04	05	06	07	07	05	06	07	07	04	05	06	07	
Commercial Varieties-Available for Farm Use																					
54V46	Pioneer Hi-Bred	4	R	HR	HR	HR	R										x ⁵	*	*	*	
5-Star	Croplan Genetics	5	R	HR	R	R	R										x	*	*	*	
6400HT	Garst Seed Co.	4	HR	HR	HR	HR	HR	*	x	*	*										
6415	Garst Seed Co.	4	HR	HR	HR	HR	HR													x	
A5225	Producers Choice	5	HR	HR	HR	HR	R							*							
AC Longview	Newfield Seeds Co. Ltd		HR					x	x	x	x										
Ameristand 403t	America's Alfalfa	4	HR	HR	HR	HR	HR					x						*			
Arc (certified)	Public	4	LR	MR	HR	-	-	x	x	x	x		x	*	*	*	*				
Baralfa 53HR	Barenbrug USA	5	HR	R	HR	HR	HR						*	*	*						
Buffalo	Public	-	-	-	-	-	-	x	x	x	x	x	*	*	*	*	x	x	*	*	x
CW 15030	Allied Seed, L.L.C.	5	HR	HR	R	HR	R													x	
DKA41-18RR	Monsanto	4	HR	HR	HR	HR	HR					*									
DK140	Monsanto	4	HR	HR	HR	HR	HR														
Dynagro Everlast	United Agri. Products	3.8	HR	HR	HR	HR	R						*	*	*					x	
Enforcer	FFR/Southern States	4	HR	HR	HR	HR	HR													x	
Evermore	FFR/Southern States	5	HR	HR	HR	HR	HR									*	*	*	*	*	
Expedition	NK Brand/Syngenta Seeds	5	HR	HR	R	RR	R	*	x	*	*	*	*	x	*						
Feast+EV	Garst Seed Co.	3	HR	HR	R	HR	HR	*	*	x	*					x	*	*	*	*	
FSG 408DP	Allied Seed, L.L.C.	4	HR	HR	HR	HR	R	*	x	x	*				*						
FSG 505	Allied Seed, L.L.C.	5	HR	HR	HR	HR	R									x	*	*	*	*	
Garst 6415	Garst Seed Co.	4	HR	HR	R	HR	R					*	*	*							
Genoa	NK Brand/Syngenta Seeds	4	HR	HR	HR	RR	HR	*	x	*	*		*	x	*	*					
Integrity	PGI Alfalfa, Inc.	4	HR	HR	HR	HR	HR													x	
L447HD	Legacy seeds, Inc.	4	HR	HR	HR	HR	HR					*									
LegenDairy 5.0	Croplan Genetics	3	HR	HR	HR	HR	HR					x	*	x	*					x	
Mariner III	Allied Seed, L.L.C.	4	HR	HR	HR	HR	HR								*						
Mountaineer 2.0	Croplan Genetics	5	HR	HR	HR	RR	HR	*	x	*	*										
Phirst	UniSouth Genetics, Inc.	4	HR	HR	HR	HR	R						*	*	*					x	
Phoenix	FFR/Southern States	5	HR	HR	HR	HR	R					x			*					x	
Rebound 5.0	Croplan Genetics	4	HR	HR	HR	HR	HR													*	
Radiant-AM	Ampac Seed Company	4	HR	HR	HR	HR	HR					*									
Regal	Great Plains Research	5	HR	HR	R	HR	MR									x	*	*	*	x	
Reward II	PGI Alfalfa, Inc.	4	HR	HR	R	HR	R					*	*	*		*	*	*	*	*	
Saranac AR (certified)	Public	4	MR	R	HR	LR	-	x	x	x	x	x	x	*	*	*	*	*	x	*	x
SummerGold	Beck's Hybrids	4	HR	HR	HR	HR	HR	*	*	*	*										
TripleTrust 450	ABI Alfalfa, Inc	5	HR	HR	HR	HR	HR					*	*	*						x	
USG681HY	UniSouth Genetics, Inc.	6	HR	HR	R	HR	-								*						
Vernal	Public	2	R	MR	-	-	-					x	*	*							
Withstand	FFR/Southern States	4	HR	HR	HR	HR	HR					x			*					*	
WL343HQ	W-L Research	4	HR	HR	HR	HR	HR					x			*						
WL348AP	W-L Research	4	HR	HR	HR	HR	HR													x	
WL355RR	W-L Research	4	HR	HR	HR	HR	HR					*									
WL357HQ	W-L Research	5	HR	HR	HR	HR	HR	*	*	*	*		*	*	*		*	*	*	*	
Experimental Varieties																					
41H158 (Enforcer)	FFR/Southern States	4	HR	HR	HR	HR	HR	x	x	*	x										
50T176 (Phoenix)	FFR/Southern States	5	HR	HR	HR	HR	R	*	*	*	*										
A-4440	PGI Alfalfa, Inc.	4	HR	HR	HR	HR	HR					*	*	*							
AA108E	ABI Alfalfa, Inc											*	*	*							
AA109E	ABI Alfalfa, Inc																			x	
BPR387	Dairyland Research	4	HR	HR	HR	HR	HR					*									
CW 24027	Cal/West Seeds	4	HR	HR	HR	HR	HR								*						
DS617	Dairyland Research	4	HR	HR	HR	HR	HR					*									
MP04	Cimarron USA	5	HR	HR	HR	HR	R													*	
TS4027	Target Seed, LLC	4	HR	HR	HR	HR	R								*						
VL02	Great Plains Research	4	HR	HR	HR	HR	MR	*	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: 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 12. Summary of Kentucky Alfalfa Yield Trials 1995-2007 (yield shown as a percentage of the mean of the commercial varieties in the test).

Variety	Proprietor	Variety Characteristics ¹						Lexington						Princeton			Bowling Green ²			Eden Shale		Mean ⁶ (# trials)														
		Disease Resistance ³						95 ^{4,5}	97	97	99	00	02	04	97	99	01	96	98	03	98		03													
		FD	Bw	Fw	An	PRR	APH	6yr ⁷	5yr	6yr	4yr	5yr	5yr	4yr	5yr	4yr	4yr	7yr	7yr	3yr	5yr		4yr													
Abilene +Z	America's Alf.	5	HR	HR	HR	HR	R						99			104																			102(2)	
ABT 205	W-L Research	2	HR	HR	HR	HR	R					100				97																			99(2)	
ABT 350	W-L Research	3	HR	HR	HR	HR	HR									98					105				101										101(3)	
ABT 400SCL	W-L Research	4	HR	HR	HR	HR	HR									102					102														102(2)	
ABT 405	W-L Research	4	HR	HR	HR	HR	R			101	101					108					101														103(4)	
AC Longview	Newfield Seeds		HR													84																			-	
Affinity+Z	ABI Alfalfa	4	HR	HR	HR	HR	R					99					101				104														101(3)	
Alfagraze	America's Alf.	2	MR	R	MR	R	-					99																							98(2)	
AmeriGraze 401+Z	America's Alf.	4	HR	HR	HR	HR	R			102				99			102	99																	101(5)	
AmeriStand 403T	America's Alf.	3	HR	HR	HR	HR	HR												97																-	
Ameriguard 302+Z	America's Alf.	3	HR	HR	HR	HR	HR					103																								-
Apollo	America's Alf.	4	R	R	R	R	-	80	108												96														95(3)	
Arc(certified)	Public	4	LR	MR	HR	-	-	98	101	87	99	91	96	80	96	100	99	91	90	98	94														94(14)	
Baralfa 54	Barenbrug	-	R	HR	HR	HR	HR														96														98(2)	
Buffalo	Public	-	-	-	-	-	-							90	83						93											95			90(4)	
Choice	FFR/Sou. St.	4	HR	R	R	HR	R	110								106					103	97													104(6)	
Cimarron3i	Great Plains	4	HR	HR	HR	HR	HR						100																						98(3)	
Cimarron SR	Great Plains	4	HR	HR	HR	HR	MR							103				101																	102(2)	
Cimarron VR	Great Plains	5	HR	HR	R	R	MR					99																							-	
Demand	ABI Alfalfa	3	HR	HR	HR	HR	R														99														-	
Depend+EV	ABI Alfalfa	-	-	-	-	-	-														104														-	
DK 127	Monsanto	3	HR	HR	HR	HR	-	111													102														107(2)	
DK 133	Monsanto	4	HR	HR	HR	HR	R	106													104														105(2)	
DK 131HQ	Monsanto	3	HR	HR	HR	HR	R						105																						-	
DK 140	Monsanto	4	HR	HR	HR	HR	H						104								102	100													101(6)	
DK 141	Monsanto	4	HR	HR	HR	HR	H						99								98														100(3)	
Dominator	America's Alf.	4	HR	HR	HR	HR	HR	102																											-	
Dynagro Everlast	United Agr. Prod.	4	HR	HR	HR	HR	R																													-
Emperor	ABI Alfalfa	4	HR	HR	HR	HR	HR																													98(2)
Evermore	FFR/Sou. St.	5	HR	HR	HR	HR	HR																													104(2)
Excalibur II	Allied Seeds	4	HR	HR	HR	HR	R	107																												-
Expedition	Syngenta	5	HR	HR	R	RR	R									107																				-
Feast	Garst Seeds	3	HR	HR	HR	HR	R			101							101																			101(2)
Feast +EV	Garst Seeds	3	HR	HR	HR	R	HR																													101(3)
FK 421	Donely Seed	4	HR	H	H	H	H														101															-
Fortress	Syngenta	3	R	R	R	HR	-			99	96																									98(5)
FSG 406	Allied Seeds	4	HR	HR	HR	HR	HR																													-
FSG 408DP	Allied Seeds	4	HR	HR	HR	HR	R										104																			-
FSG 505	Allied Seeds	5	HR	HR	HR	HR	R																													107(2)
Gem	FFR/Sou. St.	4	HR	HR	HR	HR	S					100																								101(4)
Geneva	Syngenta	4	HR	HR	HR	HR	HR							106	103																					103(6)
Genoa	Syngenta	4	HR	HR	HR	RR	HR																													-
GH 744	Golden Harvest	4	HR	HR	HR	HR	MR																													-
Goldplus	PGI Alfalfa	4	HR	HR	HR	HR	R																													-
Grazeking	FFR/Sou. St.	5	MR	HR	HR	R	S																													101(2)
Haygrazer	Great Plains	4	HR	HR	R	R	MR																													101(2)
HybridForce 400	Dairyland	4	HR	HR	R	HR	MR																													-
Imperial	America's Alf.	3	HR	HR	HR	HR	R																													-
Innovator+Z	America's Alf.	3	HR	HR	HR	HR	R																													-
Legacy	Green Seed	4	R	R	R	R	R	88																												92(2)
LH4	Pioneer	3	HR	HR	HR	R	R																													-
Magnum V	Dairyland	4	HR	HR	R	HR	HR																													-
Magnum V-wet	Dairyland	3	HR	HR	R	HR	MR																													-
Mountaineer 2.0	Croplan Gen.	5	Hr	HR	HR	RR	HR																													-
Multiqueen	Cal/West	4	HR	HR	HR	HR	R	103																												-
Pasture Plus	MBS	3	HR	HR	R	HR	MR																													-
Pegasus	FFR/Sou. St.	4	HR	HR	HR	HR	R																													-
ProGro	MBS	4	HR	HR	R	HR	MR																													-
Regal	Great Plains	5	HR	HR	R	HR	MR																													99(2)
Reward	PGI Alfalfa	4	HR	HR	R	HR	MR																													-
Reward II	PGI Alfalfa	4	HR	HR	R	HR	R																													99(3)
Rushmore	Syngenta	4	HR	HR	HR	HR	HR	108																												101(4)
Saranac AR(certified)	Public	4	MR	R	HR	LR	-	103	99	95	96	93	87	79	93																					95(14)

Table 12. Summary of Kentucky Alfalfa Yield Trials 1995-2007 (yield shown as a percentage of the mean of the commercial varieties in the test).

Variety	Proprietor	Variety Characteristics ¹						Lexington							Princeton			Bowling Green ²			Eden Shale		Mean ⁶ (# trials)						
		Disease Resistance ³						95 ^{4,5}	97	97	99	00	02	04	97	99	01	96	98	03	98	03							
		FD	Bw	Fw	An	PRR	APH	6yr ⁷	5yr	6yr	4yr	5yr	5yr	4yr	5yr	4yr	4yr	7yr	7yr	3yr	5yr	4yr							
Spredor 3	Syngenta	1	HR	HR	R	MR	S		95																	101		98(2)	
Stampede	Allied Seeds	3	HR	R	R	HR	R		95																		106		101(2)
Stellar	W-L Research	4	HR	HR	HR	HR	LR											94										-	
Summer Gold	Beck's Hybrids	4	HR	HR	HR	HR	HR						108															-	
Supercuts	ABI Alfalfa	4	HR	HR	HR	HR	S	104											103									104(2)	
TMF Generation	Mycogen Seeds	4	HR	HR	HR	HR	R												103									-	
TMF 4355LH	Mycogen Seeds	3	HR	R	HR	HR	R				100																	-	
TMF 4464	Mycogen Seeds	4	HR	HR	HR	HR	R								98													-	
Triple Crown	FFR/Sou. St.	4	HR	HR	HR	HR	HR					102				100												101(2)	
ValuePlus 1	Forage Genetics	4	HR	HR	HR	HR	R					106																-	
Vernal	Public	2	R	MR	-	-	-						93							91					96			93(3)	
Wintergreen	ABI Alfalfa	3	HR	HR	HR	HR	R			104					103											101		103(3)	
WL 252HQ	W-L Research	2	HR	HR	HR	HR	LR											104										-	
WL 319HQ	W-L Research	3	HR	HR	HR	HR	HR						108															-	
WL 323	W-L Research	4	HR	HR	HR	HR	R	103																				-	
WL 324	W-L Research	3	HR	HR	HR	HR	HR												106									-	
WL 325HQ	W-L Research	3	HR	HR	HR	HR	R			103						101		99										101(3)	
WL 326GZ	W-L Research	4	HR	HR	HR	HR	HR		99						97				98						99			98(4)	
WL 327	W-L Research	4	HR	HR	HR	HR	HR						105			100												103(2)	
WL 332SR	W-L Research	4	HR	HR	HR	HR	HR								93													-	
WL 338SR	W-L Research	4	HR	HR	HR	HR	HR						101															-	
WL 342	W-L Research	4	HR	HR	HR	HR	HR										102											-	
WL 357HQ	W-L Research	5	HR	HR	HR	HR	HR							122							101				106			110(2)	
329	Cal/West	3	HR	HR	HR	HR	R	94																				-	
4m76	FFR/Sou. St.	4.7	HR	HR	R	HR	R					116																-	
5-star	Croplan Gen.	5	R	HR	R	R	R														97				99			98(2)	
5246	Pioneer	2	R	R	HR	HR	R								98													-	
5312	Public	3	HR	HR	HR	HR	HR					103																-	
53H81	Pioneer	3	HR	HR	HR	R	HR					102																-	
53Q60	Pioneer	3	HR	R	HR	HR	R									100												-	
5454	Pioneer	4	R	HR	HR	HR	LR	96																				-	
54H69	Pioneer	4	HR	HR	HR	HR	R				99																	-	
54V46	Pioneer	4	R	HR	HR	HR	R																		99			-	
54V54	Pioneer	4	HR	HR	HR	HR	HR					98	94			104	105											100(4)	
54V56	Pioneer																				98							-	
630	Garst Seeds	3	HR	HR	MR	R	-	88																				-	
631	Garst Seeds	4	HR	R	HR	R	HR				107					106			106									106(3)	
6400HT	Garst Seeds	4	HR	HR	HR	HR	HR							109							96							103(2)	
6420	Garst Seeds	4	HR	R	HR	R	HR					106																-	
645	Garst Seeds	4	HR	R	HR	HR	MR											103										-	
6530	Garst Seeds	5	HR	HR	HR	HR	HR																			92			-

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

³ Disease resistance: S=susceptible, LR=low resistance, MR=moderate resistance, R=resistance, HR=high resistance.

⁴ Year trial was established

⁵ 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 Lexington trial planted in 1995 was harvested for 6 years, so the final yield report would be "2000 Alfalfa Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

⁶ Mean only presented when respective variety was included in two or more trials.

⁷ Number of years of data



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