

2005 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 alfalfa variety is a key step in establishing a stand of alfalfa. The choice of variety can impact yield, thickness of stand, and persistence of alfalfa stands.

This report provides current yield data on alfalfa varieties included in yield trials in Kentucky as well as guidelines for selecting alfalfa varieties.

Go to the UK Forage Extension Web site at <www.uky.edu/AG/Forage> to obtain electronic versions of all forage variety testing reports as well as 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 they 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 and 5 varieties provide a good 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 these varieties have only marginal protection when conditions are ideal for disease development. Varieties currently in development show promise for sclerotinia resistance.

Seed Quality. Buy high-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 (2002 and 2004), Bowling Green (2003), Princeton (2001 and 2005), and Eden Shale (2003) as part of the forage variety testing program. The soils at most locations are well suited to alfalfa because they are generally well-drained silt loams (Maury, Pembroke,

and Crider at Lexington, Bowling Green, and Princeton, respectively). Eden Shale has a Nicholson silt loam soil. The Bowling Green tests are on soils that are naturally infested with both phytophthora and aphanomyces root rot pathogens.

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 the alfalfa to completely 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 percent 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 Bowling Green, Eden Shale, Lexington, and Princeton 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 2005 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

Table 1. Temperature and rainfall at Lexington, Kentucky in 2002, 2003, 2004 and 2005.

	2002				2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	38	+7	2.12	-0.74	26	-5	0.96	-1.90	30	-1	3.14	+0.28	37	+6	4.35	+1.49
FEB	38	+3	1.28	-1.93	32	-3	3.59	+0.38	36	+1	1.32	-1.89	39	+4	1.68	-1.53
MAR	45	+1	7.93	+3.53	47	+3	2.09	-2.31	47	+3	3.43	-0.97	41	-3	2.79	-1.61
APR	58	+3	4.19	0.31	57	+2	3.14	-0.74	55	0	3.06	-0.82	56	+1	3.30	-0.58
MAY	61	-3	4.36	-0.11	63	-1	6.68	+2.21	68	+4	9.79	+5.32	61	-3	1.78	-2.69
JUN	74	+2	2.45	-1.21	69	-3	4.85	+1.19	72	0	3.13	-0.53	75	+3	1.33	-2.33
JUL	78	+2	1.10	-3.90	74	-2	2.68	-2.32	73	-3	7.65	+2.65	77	+1	3.30	-1.70
AUG	77	+2	0.95	-2.98	75	0	5.26	+1.33	71	-4	2.91	-1.02	78	+3	3.34	-0.59
SEP	72	+4	4.90	1.70	65	-3	4.22	+1.02	68	0	2.61	-0.59	72	+4	0.59	-2.21
OCT	55	-2	5.61	3.04	56	-1	1.61	-0.96	58	+1	5.65	+3.08	58	+1	0.92	-1.65
NOV	43	-2	3.76	0.37	50	+5	4.63	+1.24	49	+4	6.29	+2.90	47	+2	1.54	-1.85
DEC	36	0	4.11	-1.13	36	0	3.26	-0.72	36	0	3.20	-0.78				
Total			42.73	-1.79			42.97	-1.58			52.18	+7.63			25.32	-15.25

DEP is departure from the long-term average.

Table 2. Temperature and rainfall at Princeton, Kentucky in 2002, 2003, 2004 and 2005.

	2002				2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	41	+7	3.79	-0.01	31	-3	2.19	-1.61	36	+2	4.12	+0.32	41	+7	5.30	+1.50
FEB	42	+4	2.40	-2.03	35	-3	7.45	+3.02	39	+1	2.44	-1.99	43	+5	2.30	-2.13
MAR	49	+2	8.18	+3.24	50	+3	2.46	-2.48	53	+6	4.28	-0.66	47	0	4.11	-0.83
APR	63	+4	5.72	+0.92	60	+1	6.99	+2.19	59	0	5.32	+0.52	60	+1	4.61	-0.19
MAY	66	-1	9.04	+4.08	67	0	4.81	-0.15	72	+5	7.34	+2.38	65	-2	1.54	-3.42
JUN	77	+2	1.88	-1.97	71	-4	5.05	+1.20	74	-1	3.40	-0.45	76	+1	3.09	-0.76
JUL	81	+3	2.13	-2.16	79	+1	4.75	+0.46	75	-3	4.87	+0.58	79	+1	2.39	-1.90
AUG	80	+3	2.06	-1.95	79	+2	2.05	-1.96	73	-4	3.02	-0.99	80	+3	11.54	+7.53
SEP	74	+3	5.90	+2.57	69	-2	6.17	+2.84	71	0	0.20	-3.13	74	+2	2.17	-1.16
OCT	59	0	6.12	+3.07	60	+1	3.73	+0.68	64	+5	4.03	+0.98	60	+1	0.19	-2.86
NOV	47	0	2.49	-2.14	53	+6	5.85	+1.22	53	+6	6.94	+2.31	50	+3	2.48	-2.15
DEC	39	0	6.50	+1.46	40	+1	2.39	-2.65	37	-1	4.29	-0.75				
Total			56.21	+5.08			53.89	+2.76			50.25	-0.88			39.72	-6.37

DEP is departure from the long-term average.

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, while 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), while an *x* means that the variety was in the test. A single asterisk (*) means that the variety was not significantly different from the top-yielding variety based on the 5% LSD. It is best to choose a variety that has performed well over several years and locations as indicated by the asterisks.

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 these 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 3. Temperature and rainfall at Bowling Green, Kentucky in 2003, 2004 and 2005.

	2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	32	-2	1.62	-2.20	35	+1	2.96	-0.86	41	+7	4.77	+0.95
FEB	36	-2	5.93	+1.80	39	+1	2.74	-1.39	43	+5	3.11	-1.02
MAR	51	+5	1.15	-3.95	51	+5	4.03	-1.07	45	-1	3.52	-1.58
APR	60	+3	5.69	+1.37	57	0	5.66	+1.34	58	+1	5.79	+1.47
MAY	66	0	5.01	+0.07	71	+5	8.69	+3.75	64	-2	2.45	-2.49
JUN	71	-4	8.92	+4.75	74	-1	3.82	-0.35	76	+1	1.87	-2.30
JUL	77	-1	4.41	-0.33	76	-2	5.46	+0.72	79	+1	4.32	-0.42
AUG	77	0	3.03	-0.48	73	-4	4.52	+1.01	80	+3	7.94	+4.43
SEP	68	-2	6.89	+3.17	70	0	1.09	-2.63	73	+3	0.47	-3.25
OCT	59	+1	1.43	-1.59	62	+4	5.69	+2.67	59	+1	0.28	-2.74
NOV	52	+6	5.18	+0.75	52	+6	5.50	+1.07	51	+1	3.26	-1.17
DEC	39	+1	3.94	-1.09	38	0	4.94	-0.09				
Total			53.20	+2.27			55.10	+4.17			37.78	-8.12

DEP is departure from the long-term average.

Table 4. Temperature and rainfall at Eden Shale, Kentucky in 2004 and 2005.

	2004				2005			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	30	0	4.3	+1.76	35	+5	5.67	+3.13
FEB	36	+3	1.35	-1.4	39	+6	1.98	-0.77
MAR	48	+5	2.92	-1.8	40	-3	3.78	-0.94
APR	56	+2	4.32	+0.17	56	+2	3.65	-0.50
MAY	69	+6	7.8	+3.39	61	-2	2.09	-2.32
JUN	72	+1	1.66	-2.11	75	+4	1.52	-1.85
JUL	73	-2	3.37	-1.16	78	+3	3.22	-1.21
AUG	71	-3	3.86	+0.13	78	+4	8.59	+4.89
SEP	69	+1	2.14	-1.05	71	+3	1.56	-1.63
OCT	58	+1	6.51	+3.52	58	+1	1.74	-1.25
NOV	49	+4	5.02	+1.47	47	+2	3.61	+0.06
DEC	34	-1	3.38	-0.05				
Total			46.63	+2.87			37.81	-2.52

DEP is departure from the long-term average.

Variety	Percent Stand		Yield (tons/acre)									5-yr Total
	Apr 15	Oct 6	2001 Total	2002 Total	2003 Total	2004 Total	2005					
							May 10	Jun 13	Jul 28	Sep 21	Total	
Commercial Varieties—Available for Farm Use												
Hybridforce-400	28	65	4.85	6.63	7.86	5.04	1.03	0.88	1.02	0.64	3.56	27.94*
54V54	30	63	4.57	6.35	7.42	5.22	1.22	0.94	1.08	0.65	3.89	27.45*
Geneva	28	60	4.76	6.55	7.85	4.52	1.11	0.89	1.11	0.63	3.74	27.42*
WL342	34	63	4.53	6.45	7.79	4.76	0.91	0.88	1.01	0.62	3.42	26.95*
FK421	24	58	4.95	6.51	7.34	4.41	1.16	0.79	0.80	0.66	3.42	26.63*
DK140	21	55	4.80	6.66	7.24	4.14	1.19	0.89	0.85	0.54	3.48	26.33
Triple Crown	21	35	4.83	6.93	7.66	3.86	1.08	0.61	0.80	0.50	2.99	26.26
Certified Arc	21	45	4.99	6.40	7.03	4.14	1.33	0.89	0.70	0.56	3.48	26.05
Reward II	28	43	4.91	6.82	7.21	3.73	1.41	0.73	0.71	0.50	3.35	26.02
Ameristand 403T	29	55	4.70	6.52	7.19	4.02	0.91	0.77	0.85	0.51	3.04	25.47
Pegasus	10	30	4.49	6.61	7.31	3.75	0.78	0.84	0.81	0.50	2.94	25.10
Certified Saranac AR	16	40	4.53	6.53	6.97	3.29	0.78	0.81	0.79	0.50	2.88	24.20
Experimental Varieties												
BY421	16	50	5.25	7.01	7.93	4.80	1.37	0.94	0.82	0.62	3.75	28.75*
FG4M76	18	53	4.85	7.15	8.09	4.64	1.05	0.80	0.85	0.57	3.26	27.99*
SX1002A	23	50	4.86	6.94	7.13	3.60	1.17	0.84	0.72	0.57	3.29	25.81
SX1004A	18	50	4.91	6.53	6.90	4.13	0.64	0.81	0.81	0.60	2.86	25.32
SX1003A	23	38	4.71	6.64	6.98	3.71	0.91	0.66	0.67	0.54	2.79	24.83
SX1001A	11	33	4.64	6.92	6.82	2.84	0.58	0.65	0.56	0.47	2.26	23.48
SX1005A	16	28	4.90	6.52	6.49	2.83	0.86	0.66	0.51	0.41	2.44	23.18
Mean	21.7	47.9	4.79	6.67	7.33	4.07	1.03	0.80	0.82	0.56	3.20	26.06
CV,%	55.5	28.4	10.13	7.93	7.53	16.93	32.74	19.46	20.25	21.04	16.30	6.43
LSD,0.05	17.1	19.3	0.69	0.75	0.78	0.98	0.48	0.22	0.23	0.17	0.74	2.38

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

Variety	Percent Stand		Yield (tons/acre)								4-yr Total
	Apr 8	Oct 28	2002 Total	2003 Total	2004 Total	2005					
						May 23	Jun 22	Jul 25	Oct 3	Total	
Commercial Varieties—Available for Farm Use											
4m76	75	79	1.25	4.75	4.67	1.76	0.89	0.52	0.28	3.45	14.11*
WL319HQ	70	78	1.19	4.33	4.02	1.65	1.09	0.71	0.17	3.62	13.17*
GH744	48	65	1.33	4.62	3.76	1.53	0.95	0.50	0.29	3.26	12.97*
WL327	48	68	1.37	4.25	4.03	1.37	0.93	0.57	0.29	3.16	12.81*
6420	53	74	1.32	4.34	3.52	1.70	0.84	0.54	0.33	3.41	12.59
WL338SR	55	64	1.41	4.25	3.85	1.35	0.80	0.54	0.26	2.95	12.45
Geneva	50	65	1.06	4.47	3.68	1.34	0.95	0.60	0.26	3.15	12.36
Certified Arc	43	68	1.08	4.00	3.84	1.51	0.72	0.58	0.27	3.09	12.01
DK140	48	60	1.14	4.08	3.87	1.10	0.82	0.53	0.19	2.65	11.74
Vernal	53	65	1.16	4.08	3.33	1.34	0.88	0.55	0.25	3.01	11.59
54V54	43	63	1.23	4.06	3.53	1.12	0.69	0.60	0.28	2.69	11.50
Certified Saranac AR	43	58	1.25	3.83	3.18	1.27	0.84	0.41	0.22	2.74	11.01
Buffalo	33	48	1.21	4.09	3.22	0.91	0.75	0.50	0.28	2.44	10.96
Experimental Varieties											
DU 202	35	65	1.35	4.02	3.63	1.25	1.22	0.61	0.33	3.41	12.41
Mean	49.5	65.5	1.24	4.22	3.72	1.37	0.88	0.56	0.26	3.07	12.26
CV,%	24.5	16.6	14.56	8.93	11.40	20.89	39.44	23.42	34.91	17.32	8.48
LSD,0.05	17.3	15.5	0.26	0.54	0.61	0.41	0.50	0.18	0.13	0.76	1.49

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

Table 7. Dry matter yields (tons/acre) and stand rating of alfalfa varieties sown April 23, 2003 at Bowling Green, Kentucky.

Variety	Percent Stand		Yield (tons/acre)							3-yr Total
	Apr 18	Nov 3	2003 Total	2004 Total	2005					
					May 12	Jun 14	Jul 27	Sep 28	Total	
Commercial Varieties—Available for Farm Use										
FSG406	85	80	1.84	6.88	0.82	0.66	0.50	0.64	2.63	11.89*
FSG505	70	70	1.62	7.17	0.80	0.81	0.42	0.75	2.78	11.54*
Evermore	78	78	1.71	6.41	0.98	0.88	0.55	0.85	3.26	11.39*
Regal	66	60	1.71	6.76	0.87	0.61	0.53	0.66	2.67	11.14*
WL357HQ	69	73	1.75	6.69	0.76	0.67	0.52	0.59	2.77	10.97*
Feast+EV	71	60	1.67	6.45	0.67	0.68	0.54	0.56	2.58	10.97*
Certified Saranac AR	60	47	1.75	6.57	0.77	0.63	0.46	0.61	2.47	10.72*
54V56	71	57	1.75	6.49	0.86	0.58	0.54	0.47	2.46	10.69*
Certified Arc	48	38	1.80	6.50	0.81	0.57	0.48	0.52	2.37	10.68*
5-star	60	50	1.73	5.89	0.77	0.84	0.58	0.69	2.89	10.54*
6400HT	55	50	1.74	6.02	0.95	0.61	0.48	0.61	2.65	10.41*
Reward II	70	60	1.59	6.18	0.83	0.79	0.46	0.34	2.43	10.20*
6530	33	30	1.79	6.09	0.69	0.57	0.58	0.29	2.12	10.00
Experimental Varieties										
GA3-01	65	65	2.00	6.37	0.74	0.69	0.53	0.64	2.60	10.98*
GA-984	66	63	1.73	6.59	0.71	0.59	0.42	0.54	2.27	10.59*
GA4-01	58	68	1.74	6.41	0.69	0.69	0.48	0.51	2.38	10.53*
GA1-01	64	70	1.65	6.33	0.73	0.43	0.36	0.61	2.13	10.11
Mean	63.7	59.4	1.74	6.45	0.79	0.66	0.50	0.58	2.55	10.74
CV,%	31.1	38.5	13.41	11.54	32.18	33.49	27.23	49.02	24.38	10.27
LSD,0.05	29.5	34.9	0.33	1.13	0.38	0.33	0.20	0.43	0.95	1.70

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

Table 8. Dry matter yields (tons/acre) and stand rating of alfalfa varieties sown August 25, 2003 at the Eden Shale Farm near Owenton, Kentucky.

Variety	Percent Stand		Yield (tons/acre)						2-yr Total
	Apr 12	Oct 12	2004 Total	2005					
				May 25	Jun 29	Aug 8	Oct 4	Total	
Commercial Varieties—Available for Farm Use									
WL357HQ	93	98	2.72	1.22	1.10	0.89	0.59	3.81	6.53*
FSG505	89	94	2.40	1.28	1.20	0.90	0.61	3.99	6.39*
Evermore	90	96	2.49	1.42	1.10	0.75	0.56	3.83	6.32*
Reward II	94	90	2.48	1.21	1.07	0.90	0.61	3.79	6.27*
Feast+EV	88	91	2.43	1.25	1.12	0.61	0.51	3.49	5.92*
54V46	94	95	2.32	1.12	1.21	0.65	0.58	3.56	5.88*
5-Star	89	89	2.18	0.98	1.15	0.81	0.66	3.60	5.77
Regal	74	93	2.29	1.28	1.06	0.62	0.46	3.42	5.71
Certified Saranac AR	79	89	2.45	1.07	0.92	0.74	0.50	3.23	5.69
Buffalo	78	89	2.32	1.16	1.08	0.65	0.47	3.36	5.69
Mean	86.5	92.3	2.41	1.20	1.10	0.75	0.56	3.61	6.02
CV,%	6.6	7.7	7.63	15.11	18.43	29.71	15.96	11.28	7.60
LSD,0.05	8.3	10.3	0.27	0.26	0.29	0.32	0.13	0.59	0.66

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

Table 9. Dry matter yields (tons/acre) and stand rating of alfalfa varieties sown April 7, 2004 at Lexington, Kentucky.

Variety	Percent Stand		Yield (tons/acre)						2-yr Total
	Apr 8	Oct 28	2004 Total	2005			Total		
				May 23	Jun 22	Jul 25		Oct 3	
Commercial Varieties—Available for Farm Use									
WL357HQ	88	96	1.78	1.27	1.17	0.63	0.30	3.37	5.15*
Genoa	88	95	1.79	1.01	0.98	0.63	0.29	2.91	4.70*
Feast+EV	85	96	1.75	1.20	0.85	0.52	0.36	2.94	4.68*
Summer Gold	85	94	1.47	1.13	0.99	0.61	0.34	3.08	4.55
Expedition	88	88	1.70	1.22	0.75	0.62	0.24	2.83	4.53
6400HT	88	93	1.70	1.22	0.71	0.61	0.21	2.76	4.46
Mountaineer 2.0	88	96	1.66	1.05	0.81	0.56	0.29	2.70	4.37
FSG408DP	83	91	1.69	0.93	0.73	0.61	0.27	2.53	4.23
AC Longview	75	89	1.24	0.89	0.64	0.51	0.21	2.25	3.49
Certified Saranac AR	63	85	1.34	0.65	0.71	0.43	0.31	2.09	3.43
Certified Arc	50	75	1.08	0.78	0.56	0.43	0.31	2.08	3.16
Buffalo	60	78	1.04	0.63	0.55	0.50	0.23	1.91	2.95
Experimental Varieties									
50T176	88	95	1.79	1.31	0.84	0.59	0.28	3.02	4.82*
VL02	83	95	1.88	0.87	0.74	0.56	0.29	2.45	4.33
41H158	63	83	1.19	0.80	0.91	0.65	0.22	2.57	3.76
Mean	78.0	89.8	1.54	1.00	0.80	0.57	0.28	2.63	4.17
CV,%	9.6	9.8	19.27	25.20	20.56	17.29	41.17	11.49	9.44
LSD,0.05	10.7	12.6	0.42	0.36	0.23	0.14	0.16	0.43	0.56

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

Table 10. Dry matter yields (tons/acre), seedling vigor and stand rating of alfalfa varieties sown April 15, 2005 at Princeton, Kentucky.

Variety	Seedling Vigor ¹ June 13, 2005	Percent Stand Oct. 6, 2005	Yield (tons/acre)			
			Jun 27	Jul 29	Sept 21	Total
Commercial Varieties—Available for Farm Use						
WL357HQ	5.0	100	0.94	0.88	0.87	2.69*
Baralfa 53HR	5.0	100	0.86	0.85	0.91	2.62*
LegenDairy 5.0	5.0	100	1.03	0.73	0.85	2.62*
Phirst	4.8	100	0.93	0.79	0.86	2.58*
6415	5.0	100	0.78	0.83	0.96	2.56*
Genoa	4.8	100	0.98	0.75	0.84	2.56*
Reward II	4.5	100	0.85	0.79	0.92	2.56*
TripleTrust 450	4.8	100	0.82	0.78	0.92	2.52*
Everlast	5.0	99	0.79	0.77	0.91	2.47*
Buffalo	5.0	99	0.79	0.75	0.93	2.47*
Expedition	4.8	100	0.78	0.76	0.90	2.44*
Certified Saranac AR	5.0	98	0.71	0.78	0.82	2.31
Certified Arc	4.8	98	0.70	0.70	0.92	2.31
Vernal	4.8	98	0.74	0.69	0.88	2.30
Experimental Varieties						
A-4440	4.5	100	0.87	0.77	0.87	2.50*
AA108E	5.0	99	0.84	0.72	0.94	2.50*
Mean	4.8	99.3	0.84	0.77	0.89	2.50
CV,%	8.0	2.0	18.40	18.25	9.13	8.12
LSD	0.6	2.9	0.22	0.20	0.12	0.29

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

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

Table 11. Characterization and performance of alfalfa varieties across years and locations.

Variety		Variety Characteristics ¹						Lexington					Bowling Green ²			Princeton					Eden Shale			
		Disease Resistance ³						2002 ⁴				2004	2003			2001				2005	2003			
		FD ⁵	Bw	Fw	An	PRR	APH	02	03	04	05	04	05	03	04	05	01	02	03	04	05	05	04	05
Commercial Varieties—Available for Farm Use																								
4m76	FFR/Southern States	4.7	HR	HR	R	HR	R	*	*	*	*													
54V46	Pioneer Hi-Bred	4	R	HR	HR	HR	R																X	*
54V54	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR	*	X	X	X					*	X	*	*	*				
5-Star	Croplan Genetics	5	R	HR	R	R	R						*	X	*								X	*
6400HT	Garst Seed Co.										*	X	*	X	*									
AC Longview	Newfield Seeds Co. Ltd		HR								X	X												
Ameristand 403T	America's Alfalfa	3	HR	HR	HR	HR	HR								*	*	*	X	X					
Certified Arc		4	LR	MR	HR	-	-	X	X	X	*	X	X	*	*	*	*	*	*	*	*		X	
Baralfa 53HR	Barenbrug USA	-																				*		
Buffalo	Public	-	-	-	-	-	-	*	X	X	X	X	X	X								*	X	X
DK140	Monsanto	4	HR	HR	HR	HR	HR	X	X	X	X				*	*	*	*	*	*				
Dynagro Everlast	United Agri. Products	3.8	HR	HR	HR	HR	R															*		
Evermore	FFR/Southern States	5	HR	HR	HR	HR	HR						*	*	*								*	*
Expedition	NK Brand/Syngenta Seeds	5	HR	HR	R	RR	R				*	X										*		
Feast+EV	Garst Seed Co.										*	*	*	*	*								X	*
FK 421	Donely Seed Co.	4	HR	H	H	H	H								*	*	*	*	*	*				
FSG 406	Allied Seed, L.L.C.	4	HR	HR	HR	HR	HR						*	*	*									
FSG 408DP	Allied Seed, L.L.C.	4	HR	HR	HR	HR	R			*	X													
FSG 505	Allied Seed, L.L.C.	5	HR	HR	HR	HR	R					X	*	*									X	*
Garst 6415	Garst Seed Co.	4	HR	HR	R	HR	R															*		
Garst 6420	Garst Seed Co.	4	HR	HR	HR	HR	R	*	*	X	*													
Garst 6530	Garst Seed Co.	5	HR	HR	HR	HR	HR					*	*	X										
Geneva	Novartis	4	HR	HR	HR	HR	HR	X	*	X	*				*	*	*	*	*	*				
Genoa	NK Brand/Syngenta Seeds	4	HR	HR	HR	RR	HR				*	X										*		
GH 744	Golden Harvest	3.6	HR	HR	HR	HR	MR	*	*	X	*													
Hybridforce-400	Dairyland Seed Co.	4	HR	HR	R	HR	MR								*	*	*	*	*	*				
LegenDairy 5.0	Croplan Genetics	3	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															*		
Pegasus	FFR/Southern States	4	HR	HR	HR	HR	R								X	*	*	X	X					
Regal	Great Plains Research	5	HR	HR	R	HR	MR					*	*	*	*	*	*	*	*	*			X	*
Reward II	PGI Alfalfa, Inc.	4	HR	HR	R	HR	R					X	*	*	*	*	*	*	X	*	*	*	*	*
Certified Saranac AR		4	MR	R	HR	LR	-	*	X	X	X	X	X	X	*	*	*	X	*	X	X	X	X	X
SummerGold	Beck's Hybrids	4	HR	HR	HR	HR	HR				*	*												
Triple Crown	FFR/Southern States	4	HR	HR	HR	HR	HR								*	*	*	X	X					
TripleTrust 450	ABI Alfalfa, Inc	5	HR	HR	HR	HR	HR															*		
Vernal	Public	2	R	MR	-	-	-	*	X	X	*											X		
WL319HQ	W-L Research	3	HR	HR	HR	HR	HR	*	*	X	*													
WL327	W-L Research	4	HR	HR	HR	HR	R	*	*	X	*													
WL338SR	W-L Research	4	HR	HR	HR	HR	HR	*	*	X	*													
WL342	W-L Research	4	HR	HR	HR	HR	HR								X	*	*	*	*	*				
WL357HQ	W-L Research	5	HR	HR	HR	HR	HR				*	*	*	*	*							*	*	*
Experimental Varieties																								
41H158	FFR/Southern States	4	HR	HR	HR	HR	HR				X	X												
50T176	FFR/Southern States	5	HR	HR	HR	HR	R				*	*												
A-4440	PGI Alfalfa, Inc.																					*		
AA108E	ABI Alfalfa, Inc																					*		
BY421	Brett-Young Seeds		HR	HR	R	HR	R								*	*	*	*	*	*				
DU 202	Great Plains Research	4	HR	HR	HR	HR	R	*	*	X	*													
FG 4M76	FFR/Southern States	5	HR	HR	R	HR	R								*	*	*	*	*	*				
GA-1-01	Univ. of Georgia	4	HR	HR	R	HR	R					X	*	X										
GA-984	Univ. of Georgia	5	HR	HR	R	HR	HR					*	*	X										
GA-3-01	Univ. of Georgia	6	HR	HR	HR	HR	MR					*	*	*										
GA-4-01	Univ. of Georgia	6	HR	HR	HR	HR	MR					*	*	*										
SX1001A	Seedex, Inc														*	*	*	*	X	X				
SX1002A	Seedex, Inc														*	*	*	*	X	X				
SX1003A	Seedex, Inc														*	*	*	*	X	X				
SX1004A	Seedex, Inc														*	*	*	*	X	X				
SX1005A	Seedex, Inc														*	*	X	X	X					
VL02	Great Plains Research	4	HR	HR	HR	HR	MR				*	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 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 Establishment year.

⁵ Fall dormancy: 1=Spedor 3, 2=Vernal, 3=Ranger, 4=Saranac, 5=DuPuits.

Open boxes indicate the variety was not in the test.

X Indicates the variety was in the test but yielded significantly less than the top-ranked variety in the test.

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



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