

2006 Red and White Clover Report

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Introduction

Red clover (*Trifolium pratense* L.) is a high-quality, short-lived, perennial legume that is used in mixed or pure stands for pasture, hay, silage, green chop, soil improvement, and wildlife habitat. This species is adapted to a wide range of climatic and soil conditions and, therefore, is versatile as a forage crop. Stands of improved varieties are generally productive for two to three years, with the highest yields occurring in the year following establishment. Red clover is used primarily as a renovation legume for grass pastures. It is a dominant forage legume in Kentucky because it is relatively easy to establish and has high forage quality, high yield, and animal acceptance. White clover (*Trifolium repens* L.) is a low-growing, perennial pasture legume with white flowers. It differs from red clover in that the stems (stolons) grow along the surface of the soil and can form adventitious roots that may lead to the development of new plants. Three types of white clover grow in Kentucky: Dutch, intermediate, and ladino. The intermediate type has been developed to persist better than the ladino type under pasture or continuous grazing conditions. Ladino white clover has larger leaves and taller growth than the intermediate and Dutch types.

Yield and persistence of red and white clover varieties are dependent on environment and pressure from diseases and insects. The most common red clover diseases in Kentucky are southern anthracnose, powdery mildew, sclerotinia crown rot, and root rots. For white clover, the most common pests are stolon rots, root rots, and potato leafhoppers. High yield and persistence (as measured by percent stand) are two indications that a red or white clover variety is resistant to or tolerant of these pests when grown in Kentucky.

This report provides current yield data on red and white clover varieties included in yield trials in Kentucky as well as guidelines for selecting clover varieties. New for 2006, Tables 13 and 14 show a summary of all clover varieties tested in Kentucky for the last 10 years. Go to the UK Forage Extension Web site at <www.uky.edu/Ag/Forage> to obtain electronic versions of all forage variety testing reports from Kentucky and surrounding states and a large number of other forage publications.

Important Selection Considerations

Local adaptation and persistence. The variety should be adapted to Kentucky as indicated by superior performance across years and locations in replicated yield trials such as those reported in this publication. High-yielding varieties are generally also those varieties that are the most persistent. Improved red clover generally produces measurable yields for three years, with the year of establishment considered as the first year. The highest yields occur in the year following establishment. White

clover may persist longer than red clover, particularly in wet seasons, often by virtue of its reseeding ability.

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 reported in this publication. 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

This report summarizes studies at Lexington (two in 2004), Princeton (two in 2005), Quicksand (sown in 2005) and Eden Shale (sown in 2003). Trials were planted in Lexington (one red clover and one white clover) and Bowling Green (red clover) in the spring of 2006 but failed due to poor establishment conditions. These trials were replanted in August 2006. The soils at Princeton (Crider), Lexington (Maury), and Quicksand (Pope) were well-drained silt loams. Eden Shale has a Nicholson silt loam soil. All are well suited to clover production. Plots were 5 by 15 feet and were arranged in a randomized complete block design with four replications at every location.

Seedings were made at 12 pounds of seed per acre for red clover and 3 pounds per acre for white clover into a prepared seedbed using a disk drill. The first cutting in the seeding year was delayed to allow the clover to completely reach maturity as indicated by full bloom, which generally occurs about 60 to 90 days after seeding. Otherwise, harvests were taken when the clover was in the bud to early flower stage using a sickle-type forage plot harvester. Fresh weight samples were taken at each harvest to calculate percent dry matter production. All tests for establishment, fertility, and harvest management were managed according to University of Kentucky Cooperative Extension Service recommendations. Weeds were controlled to avoid limiting production and persistence.

Results and Discussion

Weather data for Quicksand, Lexington, Eden Shale, and Princeton are presented in Tables 1 through 4.

Yield data (on a dry matter basis) are presented in Tables 5 through 10. Yields are given by cutting date and as total annual production. 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 2006 and by year for each prior year.

Statistical analyses were performed on all clover data (including experimental varieties) to determine if the apparent differences are truly due to variety. Varieties not significantly different from the top variety within a column are marked with one asterisk (*). To determine if two varieties are truly different, compare the difference between the two varieties with 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.

Certified Kenland continues to rank near the top of tests. It is important to note yield differences between certified and uncertified Kenland red clover. Most Kenland offered for sale is uncertified, but our tests show it is significantly lower in yield than certified Kenland. White clover varieties, as managed in these trials, yielded less than most red clover varieties but were more persistent. Again, certified seed of improved varieties is recommended.

In addition to the commercially available varieties and experimental lines, selected “common” red clovers are included in the variety tests for comparison. Common red clover, generally sold as “medium red clover variety unknown,” is unimproved red clover with unknown performance. Several years of testing show only about one out of every 10 common red clovers is as productive as certified or proprietary red clovers. In Kentucky, the yield advantage of seeding better red clovers compared to common types is 3 to 6 tons of dry matter over the life of the stand.

Tables 11 and 12 summarize information about proprietors, distributors, and yield performance across years and locations for all varieties currently included in this report. Varieties are listed in alphabetical order, with the experimental varieties at the bottom. Experimental varieties are not available for farm use, but commercial varieties can be purchased from dealerships. In Tables 11 and 12, an open block indicates that the variety was not included in that particular test (labeled at the top

of the column), and an (x) in the block means that the variety was included in the test but yielded significantly less than the top-yielding variety in the test. A single asterisk (*) means that the variety was not significantly different from the highest-yielding variety. Look

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

	2004				2005				2006			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°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
FEB	36	+1	1.32	-1.89	39	+4	1.68	-1.53	36	+1	2.13	-1.08
MAR	47	+3	3.43	-0.97	41	-3	2.79	-1.61	44	0	3.05	-1.35
APR	55	0	3.06	-0.82	56	+1	3.30	-0.58	59	+4	3.52	-0.36
MAY	68	+4	9.79	+5.32	61	-3	1.78	-2.69	62	-2	2.99	-1.48
JUN	72	0	3.13	-0.53	75	+3	1.33	-2.33	70	-2	1.82	-1.84
JUL	73	-3	7.65	+2.65	77	+1	3.30	-1.70	76	0	5.13	+0.13
AUG	71	-4	2.91	-1.02	78	+3	3.34	-0.59	76	+1	3.23	-0.70
SEP	68	0	2.61	-0.59	72	+4	0.59	-2.21	64	-4	9.27	+6.07
OCT	58	+1	5.65	+3.08	58	+1	0.92	-1.65	54	-3	4.88	+2.31
NOV	49	+4	6.29	+2.90	47	+2	1.54	-1.85	47	+2	1.78	-1.61
DEC	36	0	3.20	-0.78	32	-4	2.19	-1.79				
Total			52.18	+7.63			27.51	-17.04			42.57	+2.00

DEP is departure from the long-term average.

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

	2005				2006			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	41	+7	5.30	+1.50	46	+12	5.38	+1.58
FEB	43	+5	2.30	-2.13	38	0	2.66	-1.77
MAR	47	0	4.11	-0.83	51	+4	4.22	-0.72
APR	60	+1	4.61	-0.19	63	+4	4.02	-0.78
MAY	65	-2	1.54	-3.42	66	-1	5.42	+0.46
JUN	76	+1	3.09	-0.76	75	0	3.39	-0.46
JUL	79	+1	2.39	-1.90	79	+1	3.79	-0.50
AUG	80	+3	11.54	+7.53	80	+3	2.58	-1.43
SEP	74	+2	2.17	-1.16	67	-4	9.80	+6.47
OCT	60	+1	0.19	-2.86	57	-2	4.5	+1.45
NOV	50	+3	2.48	-2.15	49	+2	4.31	-0.32
DEC	35	-4	1.92	-3.12				
Total			42.55	-8.58			50.07	+3.98

DEP is departure from the long-term average.

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

	2004				2005				2006			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°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
FEB	36	+3	1.35	-1.4	39	+6	1.98	-0.77	35	+2	2.05	-0.70
MAR	48	+5	2.92	-1.8	40	-3	3.78	-0.94	44	+1	6.18	+1.46
APR	56	+2	4.32	+0.17	56	+2	3.65	-0.50	59	+5	5.23	+1.08
MAY	69	+6	7.8	+3.39	61	-2	2.09	-2.32	62	-1	3.57	-0.84
JUN	72	+1	1.66	-2.11	75	+4	1.52	-1.85	69	-2	5.07	+1.30
JUL	73	-2	3.37	-1.16	78	+3	3.22	-1.21	77	+2	4.4	-0.13
AUG	71	-3	3.86	+0.13	78	+4	8.59	+4.89	77	+3	3.81	+0.08
SEP	69	+1	2.14	-1.05	71	+3	1.56	-1.63	65	-3	8.64	+5.45
OCT	58	+1	6.51	+3.52	58	+1	1.74	-1.25	54	-3	5.96	+2.97
NOV	49	+4	5.02	+1.47	47	+2	3.61	+0.06	47	+2	1.75	-1.80
DEC	34	-1	3.38	-0.05	31	-4	2.8	-0.63				
Total			46.63	+2.87			40.61	-3.15			52.22	+11.89

DEP is departure from the long-term average.

at data from several years and locations when choosing a variety of clover rather than results from one test year as is reported in Tables 5 through 10. Make sure seed of the variety selected is properly labeled and will be available when needed.

Tables 13 and 14 are summaries of yield data from 1998-2006 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%—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 Tables 13 and 14, 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, while 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 Tables 13 and 14 to determine which yearly report to refer to.

Summary

Red and white clovers can be productive components of pasture and hayfields. Choose varieties with proven performance in yield and persistence.

Other College of Agriculture publications related to the establishment, management, and harvesting of clover are available from county Extension offices are listed below:

- AGR-1 *Lime and Fertilizer Recommendations*
- AGR-2 *Producing Red Clover Seed in Kentucky*
- AGR-18 *Grain and Forage Crop Guide for Kentucky*
- AGR-26 *Renovating Hay and Pasture Fields*
- AGR-33 *Growing Red Clover in Kentucky*
- AGR-64 *Establishing Forage Crops*
- AGR-90 *Inoculation of Forage Legumes*
- AGR-93 *Growing White Clover in Kentucky*
- 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*

Table 4. Temperature and rainfall at Quicksand, Kentucky, in 2005 and 2006.

	2005				2006			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	40	+9	4.45	+1.16	44	+13	4.48	+1.19
FEB	42	+9	3.01	-0.59	37	+4	1.56	-2.04
MAR	44	+3	2.86	-1.48	47	+6	1.74	-2.60
APR	58	+5	6.63	+2.53	60	+7	2.95	-1.15
MAY	63	+1	2.05	-2.43	63	+1	3.45	-1.03
JUN	75	+5	2.39	-1.43	71	+1	3.00	-0.82
JUL	78	+4	2.58	-2.67	77	+3	3.85	-1.40
AUG	79	+6	3.51	-0.50	78	+5	3.55	-0.046
SEP	72	+6	0.27	-3.25	65	-1	5.56	-2.04
OCT	59	+5	0.68	-2.23	55	+1	6.00	+3.09
NOV	49	+7	1.30	-2.58	48	+6	2.32	-1.56
DEC	34	+1	2.39	-1.75				
Total			32.12	-15.22			38.46	-4.74

DEP is departure from the long-term average for that location.

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Variety	Percent Stand				Yield (tons/acre)						
	2005		2006		2004 Total	2005 Total	2006				3-yr Total
	Apr 8	Oct 28	Apr 7	Aug 18			May 12	Jun 15	Jul 18	Total	
Commercial Varieties—Available for Farm Use											
Freedom!	95	60	58	19	2.72	4.02	1.33	0.48	0.25	2.06	8.79*
Kenland (cert.)	96	60	55	13	2.95	3.97	1.06	0.49	0.21	1.77	8.69*
Freedom! MR	89	45	43	10	2.83	3.30	1.10	0.24	0.10	1.44	7.57*
Kenway (KVMRS)	95	48	43	19	2.31	3.49	0.73	0.36	0.27	1.37	7.17
Kenton (KNARS)	88	51	38	12	2.72	3.01	0.90	0.26	0.18	1.35	7.08
Red Gold Plus	90	44	41	13	2.98	2.97	0.65	0.23	0.23	1.12	7.07
Redland Max	90	33	20	6	2.54	3.50	0.70	0.15	0.14	0.98	7.02
Emarwan	90	20	13	4	2.58	3.44	0.49	0.11	0.16	0.76	6.78
FSG9601	90	25	15	6	3.17	2.90	0.39	0.09	0.05	0.53	6.61
Experimental Varieties											
KY Tetraploid	96	88	70	29	3.08	4.40	0.97	0.50	0.42	1.88	9.35*
CW10002	94	58	55	16	2.96	3.31	0.91	0.34	0.27	1.52	7.79*
ZR0005R	90	23	17	6	2.86	3.39	0.48	0.18	0.14	0.80	7.05
WVPB-RC-NT	89	38	28	10	2.72	3.22	0.72	0.18	0.13	1.03	6.97
Low phenolic	78	26	24	8	2.35	3.48	0.53	0.19	0.20	0.92	6.75
ZR0004R	91	38	25	10	2.50	2.75	0.49	0.11	0.13	0.73	5.98
GAc1RC	56	10	8	3	2.18	2.47	0.26	0.01	0.02	0.30	4.94
Mean	88	42	35	12	2.71	3.35	0.73	0.25	0.18	1.17	7.23
CV,%	13	53	60	66	18.78	18.49	66.07	77.59	80.47	65.49	18.54
LSD,0.05	17	32	30	11	0.73	0.89	0.70	0.27	0.21	1.10	1.93

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

Table 6. Dry matter yields, seedling vigor, and stand persistence of red clover varieties sown April 15, 2005, at Princeton, Kentucky.

Variety	Seedling Vigor ¹ Jun 13, 2005	Percent Stand			Yield (tons/acre)						
		2005 Oct 6	2006		2005 Total	2006				2-yr Total	
			Apr 5	Oct 30		May 23	Jun 26	Jul 24	Oct 10		Total
Commercial Varieties—Available for Farm Use											
Freedom!	4.8	100	100	49	1.91	3.10	1.99	0.69	0.15	5.93	7.84*
Cinnamon Plus	5.0	100	100	25	1.53	2.69	1.60	0.54	0.09	4.92	6.45
Kenton	5.0	96	100	19	1.27	2.70	1.56	0.44	0.05	4.75	6.03
Freedom! MR	5.0	100	100	23	1.63	2.28	1.43	0.43	0.08	4.22	5.84
Dominion	5.0	99	100	14	1.52	2.05	1.47	0.43	0.02	3.97	5.48
Kenway	5.0	100	100	12	1.26	2.33	1.38	0.46	0.00	4.16	5.43
Triple Trust 350	5.0	95	98	14	1.30	2.20	1.34	0.46	0.02	4.02	5.32
Kenland (cert.)	4.5	95	100	6	1.32	2.07	1.55	0.33	0.02	3.97	5.29
AA117ER	5.0	98	99	3	1.40	1.99	1.13	0.50	0.00	3.61	5.01
Solid	4.0	86	94	2	1.07	2.30	1.32	0.24	0.00	3.86	4.93
Common A	5.0	58	68	0	0.92	2.59	0.42	0.05	0.00	3.05	3.97
Common C	4.8	74	45	1	1.01	2.11	0.17	0.30	0.00	2.58	3.59
Experimental Varieties											
KY Tetraploid	5.0	99	99	16	1.50	2.66	1.68	0.53	0.04	4.90	6.40
Low Phenolic	5.0	99	100	15	1.34	2.61	1.56	0.50	0.00	4.67	6.01
RC 9602	5.0	99	99	18	1.45	2.57	1.39	0.48	0.04	4.49	5.94
RC 9603	4.8	100	99	7	1.67	2.41	1.26	0.43	0.00	4.11	5.77
Mean			93.7	14.0	1.38	2.42	1.33	0.42	0.03	4.20	5.58
CV,%			6.9	90.8	17.95	16.90	14.78	33.97	181.32	12.58	10.04
LSD,0.05			9.2	19.1	0.35	0.58	0.28	0.21	0.08	0.75	0.80

*Not significantly different from the highest numerical 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 7. Dry matter yields and stand persistence of red clover varieties sown April 6, 2005, at Quicksand, Kentucky.										
Variety	Percent Stand			Yield (tons/acre)						
	2005 Dec 5	2006		2005 Total	2006					2-yr Total
		Apr 18	Nov 3		May 19	Jun 29	Aug 8	Oct 23	Total	
Commercial Varieties—Available for Farm Use										
Freedom!	98	100	87	2.11	2.30	1.86	1.45	0.86	6.46	8.57*
Freedom! MR	95	100	82	2.41	2.17	1.78	1.33	0.72	6.00	8.41*
Kenton	98	100	83	2.42	1.98	1.83	1.28	0.76	5.85	8.27*
Kenland (cert.)	98	100	80	2.41	1.81	1.73	1.48	0.79	5.81	8.23*
Cinnamon Plus	97	100	87	2.42	1.98	1.85	1.19	0.63	5.66	8.08*
Kenway	98	100	87	2.18	2.19	1.54	1.31	0.74	5.78	7.96*
Dominion	97	98	77	2.31	1.92	1.69	1.10	0.52	5.24	7.55
Solid	90	97	60	2.36	1.84	1.60	0.97	0.47	4.87	7.24
Triple Trust 350	87	98	75	1.96	2.22	1.57	1.08	0.28	5.15	7.12
AA117ER	88	98	77	1.57	2.40	1.59	1.04	0.40	5.43	7.00
Common A	55	88	8	2.15	2.12	0.89	0.06	0.10	3.18	5.32
Common C	15	53	7	1.40	2.09	0.55	0.05	0.02	2.70	4.10
Experimental Varieties										
RC 9602	98	98	90	2.38	2.29	1.86	1.33	0.50	5.99	8.37*
KY Tetraploid	93	98	85	1.74	2.24	1.98	1.44	0.89	6.55	8.29*
Low Phenolic	95	100	82	1.73	2.27	1.84	1.20	0.78	6.09	7.82*
RC 9603	95	100	80	2.01	2.05	1.87	1.23	0.60	5.74	7.75
Mean	87	95.6	71.6	2.10	2.11	1.63	1.10	0.57	5.41	7.50
CV,%	8	5.0	10.6	16.83	11.40	9.27	11.84	19.53	7.47	6.37
LSD,0.05	12	8.0	12.7	0.59	0.4	0.25	0.22	0.18	0.67	0.8

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

Table 8. Dry matter yields and stand persistence of red and white clover varieties sown Aug. 25, 2003, at the Eden Shale farm near Owenton, Kentucky.							
Variety	Percent Stand			Yield (tons/acre)			
	2005		2006 May 5	2004 Total	2005 Total	2-yr Total	
	Apr 12	Oct 28					
Commercial Varieties—Available for Farm Use							
Freedom! MR	81	45	10	3.10	2.01	5.11*	
Freedom!	80	49	8	2.89	1.55	4.43*	
Kenland (cert.)	79	28	5	2.58	1.70	4.28*	
Kenton (KNARS)	76	33	9	2.85	1.41	4.26	
Solid	50	19	5	2.59	1.07	3.66	
GDLH	28	2	2	2.64	0.36	2.99	
GDQ	20	2	1	2.51	0.28	2.79	
GDSG	25	2	0	2.40	0.33	2.73	
Common	11	1	2	2.19	0.19	2.38	
Regal	0	68	68	1.72	0.22	1.93	
Patriot	9	53	55	1.60	0.20	1.80	
Durana	1	53	58	1.63	0.10	1.73	
Experimental Varieties							
KY Tetraploid	79	53	18	2.61	2.00	4.60*	
Low Phenolic	50	14	3	2.73	0.79	3.52	

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

Variety	Percent Stand				Yield (tons/acre)							
	2005		2006		2004 Total	2005 Total	2006					3-yr Total
	Apr 8	Oct 28	May 1	Oct 17			May 30	Jul 12	Aug 10	Oct 6	Total	
Commercial Varieties—Available for Farm Use												
CA Ladino	68	60	38	33	1.57	1.41	0.10	0.18	0.35	0.40	1.02	4.00*
Seminole	50	65	68	68	1.44	0.86	0.18	0.28	0.39	0.32	1.18	3.47*
Excel	9	63	33	28	1.55	0.60	0.15	0.21	0.35	0.36	1.06	3.21
Regal	43	28	15	23	1.47	0.59	0.03	0.15	0.33	0.38	0.89	2.95
Super Haifa	2	30	23	28	1.59	0.28	0.10	0.07	0.20	0.25	0.62	2.49
Experimental Varieties												
KY synthetic	75	63	68	75	1.50	1.47	0.23	0.42	0.41	0.28	1.34	4.31*
RD19	58	55	45	48	1.44	1.27	0.21	0.36	0.42	0.32	1.31	4.03*
GA-178	65	73	65	73	1.55	0.86	0.20	0.43	0.47	0.41	1.51	3.92*
RD06	38	63	48	53	1.23	1.21	0.16	0.31	0.37	0.38	1.22	3.66*
Crusader	35	68	65	70	1.37	0.72	0.17	0.30	0.34	0.31	1.13	3.21
Mean	44	57	47	50	1.47	0.93	0.15	0.27	0.36	0.34	1.13	3.53
CV,%	30	26	28	22	19.42	41.63	56.35	23.46	27.55	29.44	21.67	17.17
LSD,0.05	19	21	19	16	0.41	0.56	0.12	0.09	0.12	0.15	0.36	0.88

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

Variety	Seedling Vigor ¹ Jun 13, 2005	Percent Stand			Yield (tons/acre)						
		2005 Oct 6	2006		2005 Total	2006					2-yr Total
			Apr 6	Oct 30		May 23	Jun 26	Jul 24	Oct 10	Total	
Commercial Varieties—Available for Farm Use											
Will	4.5	98	100	76	1.77	1.34	0.66	0.53	0.50	3.03	4.80*
Pinnacle	5.0	100	99	63	1.52	0.90	0.61	0.53	0.39	2.43	3.95
Colt	5.0	95	74	29	1.53	1.19	0.50	0.44	0.26	2.40	3.93
Crescendo	5.0	99	98	44	1.75	0.85	0.54	0.50	0.27	2.15	3.91
Regal	4.5	99	98	44	1.59	0.91	0.56	0.51	0.22	2.19	3.78
Patriot	4.5	100	99	55	1.30	1.03	0.50	0.44	0.34	2.31	3.60
Common	4.5	99	89	45	1.18	0.90	0.47	0.38	0.21	1.96	3.15
Durana	3.8	99	98	28	1.10	1.08	0.42	0.39	0.09	1.99	3.09
Alice	4.0	86	95	41	1.04	0.86	0.52	0.42	0.18	1.97	3.02
Avoca	3.5	89	95	30	1.01	0.93	0.42	0.38	0.20	1.93	2.93
Experimental Varieties											
CW9701	5.0	100	100	60	1.58	0.96	0.54	0.49	0.58	2.56	4.14
WC-2	4.8	100	99	71	1.40	0.92	0.56	0.47	0.35	2.29	3.69
WC-1	4.8	99	95	18	1.52	1.04	0.53	0.34	0.13	2.05	3.57
KY synthetic	3.5	89	99	59	0.95	1.11	0.52	0.34	0.37	2.34	3.29
Mean	4.4	97	95.4	47.2	1.37	1.00	0.52	0.44	0.29	2.58	3.63
CV,%	12.5	7	12.4	46.4	17.69	20.75	18.10	23.42	75.69	18.00	11.73
LSD,0.05	0.8	9	16.9	31.3	0.35	0.30	0.14	0.15	0.32	49.6	0.61

*Not significantly different from the highest numerical 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. Performance of red clover varieties across years and locations.

Variety/Proprietor		Lexington			Quicksand		Princeton		Eden Shale	
		2004 ¹			2005		2005		2003	
		04 ²	05	06	05	06	05	06	04	05
Commercial Varieties—Available for Farm Use										
AA117ER	ABI Alfalfa				X	X	X	X		
Cinnamon Plus	FFR/Southern States				*	X	X	X		
Common A	Public				*	X	X	X	X	X
Common C	Public				X	X	X	X		
Dominion	Seed Research of Oregon				*	X	X	X		
Emarwan	Van Dyke Seed Co.	*	*	X						
FSG9601	Allied Seed, L.L.C.	*	X	X						
Freedom!	Barenbrug	*	*	*	*	*	*	*	*	*
GDLH	Public								X	X
GDSG	Public								X	X
GDQ	Public								X	X
Kenland (cert.)	Public	*	*	*	*	*	X	X	X	*
Kenton (KNARS)	Production Services, Int'l.	*	X	*	*	*	X	X	X	X
Kenway (KVMRS)	Smith Seed Services	X	*	*	*	X	X	X		
Red Gold Plus	Turner Seed Co.	*	X	*						
Redland Max	ABI Alfalfa	*	*	*						
Solid	Improved Forages Inc.				*	X	X	X	X	X
TripleTrust 350	ABI Alfalfa				*	X	X	X		
Experimental Varieties										
CW10002	Cal/West Seeds	*	*	*						
Freedom! MR	KY Agr. Exp. Station	*	*	*	*	*	*	X	*	*
GAc1RC	Univ. of Georgia	X	X	X						
KY Low phenolic	KY Agr. Exp. Station	X	*	*	X	*	X	X	*	X
KY Tetraploid	KY Agr. Exp. Station	*	*	*	X	*	X	X	X	*
RC9602	Allied Seed, L.L.C.				*	*	X	X		
RC9603	Allied Seed, L.L.C.				*	X	*	X		
WVPB-RC-NT	Smith Seed Services	*	*	*						
ZR0004R	ABI Alfalfa	*	X	X						
ZR0005R	ABI Alfalfa	*	*	X						
¹ Establishment year ² Harvest year Open boxes indicate the variety was not in the test. x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test. *Not significantly different from the top-ranked red clover variety in the test.										

Table 12. Performance of white clover varieties across years and locations.								
Variety (Type)/Proprietor		Lexington			Princeton		Eden Shale	
		2004¹			2005		2003	
		04²	05	06	05	06	04	05
Commercial Varieties—Available for Farm Use								
Alice (Intermediate)	Barenbrug				X	X		
Avoca (Dutch)	DLF International Seeds				X	X		
California Ladino	Public	*	*	*				
Colt (Intermediate)	Seed Research of Oregon				*	X		
Common (Dutch)	Public				X	X		
Cresendo (Ladino)	Cal/West Seeds				*	X		
Durana (Dutch)	Pennington				X	X	*	*
Excel (Ladino)	Allied Seed, L.L.C.	*	X	*				
Patriot (Intermediate)	Pennington				X	X	*	*
Pinnacle (Ladino)	Allied Seed, L.L.C.				*	X		
Regal (Ladino)	Public	*	X	*	*	X	*	*
Seminole (Ladino)	Saddle Butte Ag. Inc.	*	*	*				
Super Haifa (Intermediate)	Allied Seed, L.L.C.	*	X	X				
Will (Ladino)	Allied Seed, L.L.C.				*	*		
Experimental Varieties								
Crusader (Intermediate)	Barenbrug	*	X	*				
CW 9701	Cal/West Seeds				*	*		
GA-178	Univ. of Georgia	*	*	*				
KY synthetic (Dutch)	KY Agr. Exp. Station	*	*	*	X	X		
RD06 (Intermediate)	Allied Seed, L.L.C.	*	*	*				
RD19 (Ladino)	Allied Seed, L.L.C.	*	*	*				
WC-1	Oregon Seeds, Inc.				*	X		
WC-2	Oregon Seeds, Inc.				X	X		
¹ Establishment year ² Harvest year Open boxes indicate the variety was not in the test. x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test. *Not significantly different from the top-ranked white clover variety in the test.								

Table 13. Summary of Kentucky Red Clover Yield Trials, 1998-2006 (yield shown as a percentage of the mean of the named commercial varieties in the trial).

Variety/Proprietor		Lexington						Princeton				Quicksand				Eden Shale		Mean ³ (# trials)
		00 ^{1,2} 3yr ⁴	00 3yr	01 3yr	02 3yr	03 3yr	04 3yr	99 3yr	00 3yr	03 3yr	05 2-yr	98 3yr	01 2yr	03 2yr	05 2-yr	00 3yr	03 2yr	
AA117ER	ABI Alfalfa										87						88(2)	
Acclaim	Allied Seed				92												-	
Arlington	WI Agr. Exp.Sta.				72												-	
Belle	Agribiotech	88			82			93									88(3)	
Cherokee	FL Agr. Exp. Sta.	78			65												72(2)	
Cinnamon	FFR/Sou.St.	111			108			115			100						109(4)	
Cinnamon Plus	FFR/Sou.St.					97				112				103			104(3)	
Dominion	Seed Research of OR									95				96			96(2)	
Duration	Cisco Co.			86	100							106					97(3)	
Emarwan	Turf-Seed						91					101					96(2)	
Freedom!	Barenbrug	108	105	127	123	96	118	103	105	110	136	109	111	103	109	102	110(16)	
Freedom!MR	Barenbrug				118	115	102			106	101			94	107	118	108(8)	
FSG 9601	Allied Seed						89										-	
Greenstar	Genesis Turf										100						-	
Impact	Specialty Seeds	106	97					98									100(3)	
Kenland (cert.)	Public	110	111	127	139	118	117	117	104	102	92	112	111	88	105	104	98	110(16)
Kenland (uncert.)	Public											78	83					81(2)
Kenstar	KY Ag. Exp Sta.		105						104			107						105(3)
Kenton	Production Services, Int'l.	100	93	119	109	90	95	104	98	95	105		93	99	105	102	98	101(15)
Kenway	Smith Seed Services	106	104	111	134		97	103	100		94		100		101	102		105(11)
Mammoth	Public							61										-
Plus	Allied Seed	113			113			110								97		108(4)
Prima	Public	92			74													83(2)
Red Gold Plus	Turner Seed		97	97			95		95				98			98		97(6)
RedlanGraze	ABI Alfalfa	95						101										98(2)
RedlanGraze II	Americas Alfalfa			91	104							93						96(3)
Redland Max	ABI Alfalfa						95											-
Redstart	Syngenta	102			78													90(2)
Robust	Scott Seed	92																-
Rojo Diablo	Great Plains			99									101					100(2)
Royal Red	FFR/Sou.St.	108	92		91			79							96			93(5)
Scarlet	Dairyland	95																-
Sienna	Great Plains			91									106					99(2)
Solid	Production Service	97	102		98	84		112	98	87	86	94			92	105	84	95(12)
Starfire	Ampac Seed	97	93		99				98						95			96(5)
Triple Trust 350	ABI Alfalfa										92				91			92(2)
Vesna	DLF-Jenks			53									96					75(2)

¹ Year trial was established.

² 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 trial. For example, the Lexington trial planted in 2000 was harvested three years, so the final report would be "2002 Red and White Clover Report" archived in the Kentucky Forage Web site at <www.uky.edu/Ag/Forage>.

³ Mean only presented when respective variety was included in two or more trials.

⁴ Number of years of data.

Table 14. Summary of Kentucky White Clover Yield Trials, 1998-2006 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety (Type)/Proprietor		Lexington			Princeton		Quicksand		Eden Shale	Mean ³ (# trials)
		2002 ^{1,2} 3yr ⁴	2003 3yr	2004 3-yr	2003 3yr	2005 2-yr	1998 3yr	2003 2yr	2003 2yr	
Advantage (Ladino)	Allied Seed		125						106	116(2)
Alice (Intermediate)	Barenbrug					84				-
Avoca (Dutch)	DLF Inter national Seeds					81				-
Barblanca (Intermediate)	Barenbrug		92							-
CA ladino (Ladino)	Public	100		124	103		100	98		105(5)
Colt (Intermediate)	Seed Research of OR		90			109				100(2)
Common (Dutch)	Public	100				87				94(2)
Crescendo (Ladino)	Cal/West	105				108				107(2)
Excel (Ladino)	Allied Seed			100						-
Durana (Dutch)	Pennington		94		87	85		101	95	92(5)
Ivory (Intermediate)	Cebeco	96								-
Jumbo (Ladino)	Ampac Seed	93								-
Kopu II (Intermediate)	Ampac Seed	97								-
Patriot (Intermediate)	Pennington		103		104	100		98	99	101(5)
Pinnacle (Ladino)	Allied Seed					109				-
Regal (Ladino)	Public	99	96	92	107	105	100	104		100(7)
Seminole (Ladino)	Saddle Butte Ag. Inc			108						-
Super Haifa (Intermediate)	Allied Seed			77						-
Tillman II (Ladino)	Caudill Seed	103								-
Will (Ladino)	Allied Seed	107				133				120(2)

¹ Year trial was established.

² 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 trial. For example, the Lexington trial planted in 2002 was harvested three years, so the final report would be "2004 Red and White Clover Report" archived in the Kentucky Forage Web site at <www.uky.edu/Ag/Forage>.

³ Mean only presented when respective variety was included in two or more trials.

⁴ Number of years of data.



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