

2007 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. 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. Dutch white clover, sometimes called common, naturally occurs in many Kentucky pastures and even lawns. It is generally long lived and reseeds readily, but its small leaves and low growth habit result in low forage yield. The intermediate type is a cross between ladino and Dutch white clover, and has been developed to give higher yields than the Dutch type and 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 and is the highest yielding of the three white clover 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. Tables 13 and 14 show a summary of all clover varieties tested in Kentucky for 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 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 two and a half to 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, and does have the ability to reseed even under grazing.

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 2006 and one in 2007), Princeton (2005), Quicksand (sown in 2005) and Bowling Green (sown in 2006). The soils at Princeton (Crider), Lexington (Maury), Bowling Green (Pembroke) and Quicksand (Pope) are well-drained silt loams. 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, Bowling Green 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 2007 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 average 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 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 1998-2007 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%—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; 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 footnotes 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.

The following College of Agriculture publications related to the establishment, management, and harvesting of clover are available from county Extension offices or can be found at www.uky.edu/Ag/Forage.

AGR-1	<i>Lime and Fertilizer Recommendations</i>
AGR-2	<i>Producing Red Clover Seed in Kentucky</i>
AGR-18	<i>Grain and Forage Crop Guide for Kentucky</i>
AGR-26	<i>Renovating Hay and Pasture Fields</i>
AGR-33	<i>Growing Red Clover in Kentucky</i>
AGR-64	<i>Establishing Forage Crops</i>
AGR-90	<i>Inoculation of Forage Legumes</i>
AGR-93	<i>Growing White Clover in Kentucky</i>
AGR-148	<i>Weed Control Strategies for Alfalfa and Other Forage Legume Crops</i>
ENT-17	<i>Insect Management Recommendations for Field Crops and Livestock</i>
PPA-10D	<i>Kentucky Plant Disease Management Guide for Forage Legumes</i>

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

	2006				2007 ²			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP
JAN	42	+11	4.77	+1.91	37	+6	2.93	+0.07
FEB	36	+1	2.13	-1.08	27	-8	1.83	-1.38
MAR	44	0	3.05	-1.35	52	+8	1.97	-2.43
APR	59	+4	3.52	-0.36	53	-2	3.87	-0.01
MAY	62	-2	2.99	-1.48	68	+4	1.45	-3.02
JUN	70	-2	1.82	-1.84	74	+2	1.77	-1.89
JUL	76	0	5.13	+0.13	74	-2	6.90	+1.90
AUG	76	+1	3.23	-0.70	80	+5	2.56	-1.37
SEP	64	-4	9.27	+6.07	72	+4	1.15	-2.05
OCT	54	-3	4.88	+2.31	63	+6	5.28	+2.71
NOV	47	+2	1.78	-1.61	46	+1	2.86	-0.53
DEC	42	+6	2.45	-1.53				
Total			45.02	+0.47			32.57	-8.00

¹ DEP is departure from the long-term average.

² 2007 data is for the 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	5.84	+2.79
NOV	50	+3	2.48	-2.15	49	+2	4.31	-0.32	49	+2	2.31	-3.32
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 the 11 months through November

Table 3. Temperature and rainfall at Quicksand, 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	40	+9	4.45	+1.16	44	+13	4.48	+1.19	38	+7	2.70	-0.59
FEB	42	+9	3.01	-0.59	37	+4	1.56	-2.04	31	-2	0.61	-2.99
MAR	44	+3	2.86	-1.48	47	+6	1.74	-2.60	54	+13	2.70	-1.64
APR	58	+5	6.63	+2.53	60	+7	2.95	-1.15	55	+2	1.71	-2.39
MAY	63	+1	2.05	-2.43	63	+1	3.45	-1.03	69	+7	1.82	-2.66
JUN	75	+5	2.39	-1.43	71	+1	3.00	-0.82	75	+5	1.95	-1.87
JUL	78	+4	2.58	-2.67	77	+3	3.85	-1.40	76	+2	4.00	-1.25
AUG	79	+6	3.51	-0.50	78	+5	3.55	-0.46	82	+9	2.41	-1.60
SEP	72	+6	0.27	-3.25	65	-1	5.56	-2.04	73	+7	2.49	-1.03
OCT	59	+5	0.68	-2.23	55	+1	6.00	+3.09	63	+9	3.80	+0.89
NOV	49	+7	1.30	-2.58	48	+6	2.32	-1.56	47	+5	1.80	-2.08
DEC	34	+1	2.39	-1.75	43	+10	1.55	-2.59				
Total			32.12	-15.22			40.07	-7.27			25.99	-17.21

¹ DEP is departure from the long-term average.

² 2007 data is for the 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	3.3	-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 the 11 months through November

Table 5. Dry matter yields and stand persistence of red clover varieties sown April 6, 2005 at Quicksand, Kentucky.

Variety	Percent Stand				Yield (tons/acre)							3-yr Total
	2006		2007		2005 Total	2006 Total	2007					
	Apr 18	Nov 3	Apr 12	Oct 17			Jun 5	Jul 12	Aug 15	Nov 21	Total	
Commercial Varieties-Available for Farm Use												
Freedom!	100	87	87	87	2.11	6.46	2.89	1.15	0.57	0.16	4.77	13.34*
Freedom! MR	100	82	80	75	2.41	6.00	2.59	0.87	0.43	0.06	3.95	12.36*
Kenton	100	83	80	60	2.42	5.85	2.25	0.88	0.36	0.06	3.55	11.82
Kenland (cert.)	100	80	72	68	2.41	5.81	2.20	0.91	0.36	0.06	3.54	11.76
Cinnamon Plus	100	87	68	47	2.42	5.66	2.28	0.80	0.32	0.04	3.43	11.51
Kenway	100	87	75	73	2.18	5.78	2.22	0.85	0.37	0.07	3.50	11.47
Dominion	98	77	67	50	2.31	5.24	1.89	0.67	0.27	0.06	2.89	10.44
AA117ER	98	77	70	52	1.57	5.43	2.20	0.70	0.39	0.04	3.33	10.32
TripleTrust 350	98	75	62	50	1.96	5.15	2.06	0.68	0.33	0.04	3.11	10.23
Solid	97	60	47	20	2.36	4.87	0.88	0.32	0.06	0.02	1.28	8.52
Common A	88	8	6	7	2.15	3.18	0.71	0.06	0.04	0.00	0.81	6.14
Common C	53	7	2	1	1.40	2.70	0.46	0.02	0.02	0.00	0.49	4.59
Experimental Varieties												
KY Tetraploid	98	85	87	85	1.74	6.55	3.00	1.15	0.64	0.12	4.92	13.20*
RC 9602	98	90	83	78	2.38	5.99	1.70	1.05	0.47	0.07	3.30	11.67
Low Phenolic	100	82	80	80	1.73	6.09	2.00	0.80	0.47	0.05	3.32	11.13
RC 9603	100	80	67	62	2.01	5.74	1.83	0.74	0.36	0.08	3.01	10.76
Mean	95.6	71.6	64.5	55.9	2.10	5.41	1.95	0.73	0.34	0.06	3.08	10.58
CV,%	5.0	10.6	16.4	22.4	16.83	7.47	25.10	16.60	26.60	63.20	18.60	6.49
LSD,0.05	8.0	12.7	17.6	20.9	0.59	0.67	0.81	0.20	0.15	0.06	0.96	1.14

* 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 August 14, 2006 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 10, 2006	Percent Stand			Yield (tons/acre)					
		2006 Oct 17	2007		2007					
			Mar 26	Oct 11	May 23	Jun 26	Jul 24	Aug 15	Total	
Commercial Varieties-Available for Farm Use										
KY Tetraploid	5.0	100	98	85	1.23	0.86	1.29	0.50	3.88*	
Kenway	4.8	99	93	88	1.22	1.01	1.04	0.48	3.75*	
Kenton	5.0	100	96	88	1.31	0.84	1.02	0.46	3.63*	
Kenland	4.5	99	95	81	1.09	1.00	1.05	0.50	3.63*	
AA117ER	4.8	100	95	88	1.22	0.64	1.25	0.50	3.60*	
Freedom! MR	4.3	96	95	88	1.16	0.70	1.03	0.54	3.43*	
Cinnamon Plus	5.0	100	95	80	1.07	0.74	1.09	0.50	3.40*	
Dominion	5.0	100	95	86	1.17	0.68	1.06	0.47	3.38*	
TripleTrust 350	5.0	99	97	84	1.23	0.56	1.06	0.48	3.35	
Red Gold	3.5	91	95	60	1.03	0.85	0.98	0.35	3.21	
Freedom!	5.0	98	88	79	1.08	0.74	0.95	0.40	3.17	
Solid	4.8	98	90	44	1.04	0.79	0.89	0.33	3.06	
Common A	4.8	78	95	16	1.31	0.65	0.76	0.19	2.91	
Experimental Varieties										
FSG 9603	5.0	100	94	89	1.24	0.67	1.06	0.51	3.46*	
CW 10002	5.0	100	98	90	1.09	0.61	1.11	0.55	3.37	
CW 20001	5.0	100	97	88	1.18	0.67	1.06	0.45	3.36	
Low Phenolic	4.5	99	96	73	1.35	0.61	0.95	0.41	3.32	
IS-TP3	5.0	100	95	80	1.05	0.77	1.04	0.41	3.27	
FSG 9602	4.8	99	95	84	1.07	0.61	1.03	0.45	3.16	
M101-RC1	4.8	98	89	28	1.06	0.70	0.75	0.30	2.82	
Mean	4.8	98.0	94.0	75.0	1.16	0.73	1.02	0.44	3.36	
CV,%	8.5	10.7	4.2	13.8	14.88	20.73	9.83	10.39	10.60	
LSD,0.05	0.6	14.8	5.6	14.6	0.24	0.22	0.14	0.11	0.50	

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 7. Dry matter yields, seedling vigor and stand persistence of red clover varieties sown August 24, 2006 at Bowling Green, Kentucky.

Variety	Seedling Vigor ¹ Oct 30, 2006	Percent Stand				Yield (tons/acre)			
		2006 Oct 30	2007			2007			
			Mar 16	May 14	Oct 29	May 14	Jun 14	Jul 25	Total
Commercial Varieties-Available for Farm Use									
Freedom!	5.0	99	89	95	7	0.98	1.55	1.18	3.72*
KY Tetraploid	5.0	100	98	99	14	1.22	1.39	1.09	3.71*
Kenland	5.0	99	86	93	7	1.04	1.40	1.10	3.54*
AA117ER	5.0	100	95	99	7	1.19	1.16	1.13	3.48*
Cinnamon Plus	4.8	99	92	97	8	1.09	1.32	1.05	3.46*
Dominion	5.0	100	91	98	4	1.13	1.23	0.93	3.29*
TripleTrust 350	5.0	100	79	98	6	1.03	1.08	1.08	3.19
Common A	5.0	100	70	91	0	1.11	0.64	0.33	2.09
Experimental Varieties									
FSG 9602	4.8	97	76	92	13	0.96	1.17	1.13	3.26*
FSG 9603	5.0	100	80	95	16	0.88	1.14	0.90	2.91
Mean	5.0	99.0	85.0	96.0	8.0	1.06	1.21	0.99	3.26
CV,%	4.3	1.8	12.8	3.7	88.7	10.82	10.73	19.05	9.99
LSD,0.05	0.3	2.5	15.9	5.1	10.2	0.17	0.19	0.27	0.47

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

Variety	Type	Seedling Vigor ¹ Jun 13, 2005	Percent Stand					Yield (tons/acre)					3-yr Total
			2005 Oct 6	2006		2007		2005 Total	2006 Total	2007		Total	
				Apr 6	Oct 30	Apr 3	Jul 25			May 8	Jun 25		
Commercial Varieties-Available for Farm Use													
Will	Ladino	4.5	98	100	76	73	50	1.77	3.03	0.35	0.45	0.79	5.59*
RegalGraze	Ladino	5.0	100	100	60	45	45	1.58	2.56	0.13	0.40	0.53	4.67
Colt	Intermediate	5.0	95	74	29	23	41	1.53	2.40	0.32	0.42	0.74	4.67
Pinnacle	Ladino	5.0	100	99	63	58	41	1.52	2.43	0.18	0.42	0.60	4.55
Crescendo	Ladino	5.0	99	98	44	34	30	1.75	2.15	0.19	0.39	0.58	4.48
Patriot	Intermediate	4.5	100	99	55	44	48	1.30	2.31	0.17	0.34	0.51	4.11
Regal	Ladino	4.5	99	98	44	23	33	1.59	2.19	0.07	0.26	0.33	4.11
Alice	Intermediate	4.0	86	95	41	35	33	1.04	1.97	0.23	0.29	0.52	3.54
Durana	Dutch	3.8	99	98	28	26	33	1.10	1.99	0.07	0.28	0.35	3.44
Avoca	Dutch	3.5	89	95	30	28	30	1.01	1.93	0.16	0.28	0.44	3.37
Common	Dutch	4.5	99	89	45	11	5	1.18	1.96	0.02	0.03	0.06	3.20
Experimental Varieties													
WC-2	-	4.8	100	99	71	38	28	1.40	2.29	0.11	0.28	0.39	4.08
KYSynthetic	Intermediate	3.5	89	99	59	56	65	0.95	2.34	0.23	0.39	0.62	3.91
WC-1	-	4.8	99	95	18	13	33	1.52	2.05	0.07	0.20	0.27	3.83
Mean		4.4	97.0	95.4	47.2	36.0	37.0	1.37	2.26	0.16	0.32	0.48	4.11
CV,%		12.5	7.0	12.4	46.4	57.8	61.1	17.69	18.49	64.64	37.66	39.39	11.51
LSD,0.05		0.8	9.0	16.9	31.3	29.8	31.9	0.35	0.60	0.15	0.17	0.27	0.68

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 white clover varieties sown August 14, 2006 at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Oct 17, 2006	Percent Stand			Yield (tons/acre)				
			2006		2007	2007				
			Oct 17	Mar 26	Oct 12	May 25	Jun 26	Jul 23	Aug 15	Total
Commercial Varieties-Available for Farm Use										
Will	Ladino	3.8	91	80	85	0.84	0.32	0.71	0.37	2.24*
Crescendo	Ladino	4.5	94	81	80	0.68	0.33	0.68	0.35	2.05*
Insight	Ladino	4.5	94	69	85	0.61	0.31	0.65	0.43	2.00*
Pinnacle	Ladino	4.5	94	80	78	0.55	0.32	0.65	0.34	1.86*
RagalGraze	Ladino	4.0	73	80	83	0.57	0.31	0.67	0.31	1.86*
Kopu II	Intermediate	4.5	96	69	88	0.50	0.24	0.47	0.30	1.52
Patriot	Intermediate	3.0	90	74	79	0.56	0.23	0.34	0.20	1.33
Durana	Dutch	3.3	96	78	83	0.65	0.13	0.20	0.25	1.23
Seminole	Ladino	3.5	95	65	75	0.41	0.17	0.27	0.20	1.05
Resolute	Intermediate	2.5	98	88	81	0.54	0.13	0.20	0.14	1.01
Avoca	Dutch	1.3	41	56	60	0.53	0.12	0.24	0.12	1.01
Colt	Intermediate	2.3	95	87	79	0.52	0.13	0.10	0.11	0.86
Experimental Varieties										
CW9501	Ladino	4.3	98	83	81	0.75	0.36	0.63	0.42	2.16*
KY Synthetic	Intermediate	3.0	95	95	84	0.98	0.26	0.43	0.24	1.90*
CW 204	Ladino	4.0	85	75	78	0.64	0.24	0.65	0.27	1.81*
WC-2	–	3.8	94	53	63	0.39	0.20	0.34	0.31	1.24
LSC-RD19	Ladino	4.0	96	44	58	0.25	0.20	0.28	0.24	0.97
WC-1	–	3.0	90	38	50	0.31	0.13	0.19	0.19	0.83
LSC-RD20	Haifa	3.5	90	10	36	0.02	0.04	0.06	0.16	0.28
Mean		3.5	90.0	69.0	74.0	0.54	0.22	0.41	0.26	1.43
CV,%		20.1	15.0	24.9	18.3	31.05	39.35	31.07	31.47	27.35
LSD,0.05		1.0	19.0	24.2	19.1	0.24	0.12	0.18	0.12	0.45

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 and stand persistence of white clover varieties sown April 2, 2007 at Lexington, Kentucky.

Variety	Type	Percent Stand	Yield (tons/acre)			
			2007			
			Oct 12	Jul 23	Aug 15	Total
Commercial Varieties-Available for Farm Use						
RegalGraze	Ladino	100	0.81	0.26	1.07*	
Regal	Ladino	100	0.74	0.27	1.01*	
Kopu II	Intermediate	100	0.70	0.17	0.87*	
Will	Ladino	100	0.67	0.18	0.85*	
Seminole	Ladino	100	0.62	0.23	0.85*	
Rampart	Ladino	100	0.65	0.20	0.84*	
Common	Dutch	100	0.64	0.16	0.81	
Patriot	Intermediate	100	0.59	0.18	0.77	
Durana	Dutch	100	0.39	0.17	0.56	
Ivory II	Intermediate	100	0.39	0.14	0.53	
Experimental Varieties						
CW 204	Ladino	100	0.87	0.27	1.14*	
KY Synthetic	Intermediate	100	0.54	0.17	0.72	
Mean		100	0.63	0.20	0.83	
CV,%		0	22.94	48.96	26.25	
LSD,0.05		0	0.21	0.14	0.31	

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

Table 11. Performance of red clover varieties across years and locations.

Variety	Proprietor/KY Distributor	Lexington	Quicksand			Bowling Green
		2006 ¹	2005			2006
		07 ²	05	06	07	07
Commercial Varieties-Available for Farm Use						
AA117ER	ABI Alfalfa	*	x ³	x	x	*
Cinnamon Plus	FFR/Southern States	*	*	x	x	*
Common A	Public	x	*	x	x	x
Common C	Public		x	x	x	
Dominion	Seed Research of Oregon	*	*	x	x	*
Freedom!	Barenbrug	x	*	*	*	*
Kenland, certified	KY Agric. Exp. Station	*	*	*	x	*
Kenton (KNARS)	KY Agr. Exp. Station	*	*	*	x	
Kenway (KVMRS)	KY Agr. Exp. Station	*	*	x	x	
Red Gold	Pro Seeds Marketing	x				
Solid	Improved Forages Inc.	x	*	x	x	
TripleTrust 350	ABI Alfalfa	x	*	x	x	x
Experimental Varieties						
CW10002	Producers Choice	x				
CW20001	Cal/West Seeds	x				
IS-TP3	DLF International Seeds	x				
Freedom! MR	KY Agr. Exp. Station	*	*	*	*	
KY Low phenolic	KY Agr. Exp. Station	x	x	*	x	
KY Tetraploid	KY Agr. Exp. Station	*	x	*	*	*
M101-RC1	Oregro Seeds	x				
RC9602	Allied Seed, L.L.C.	x	*	*	x	*
RC9603	Allied Seed, L.L.C.	*	*	x	x	x

¹ Establishment year

² Harvest year

³ x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test. Open boxes indicate the variety was not 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/KY Distributor	Lexington	Princeton			
			2006 ¹	2007	2005		
			07 ²	07	05	06	07
Commercial Varieties-Available for Farm Use							
Alice	Intermediate	Barenbrug			x ³	x	*
Avoca	Dutch	DLF International Seeds	x		x	x	x
Colt	Intermediate	Seed Research of Oregon	x		*	x	*
Common	Dutch	Public		x	x	x	x
Cresendo	Ladino	Cal/West Seeds	*		*	x	*
Durana	Dutch	Pennington	x	x	x	x	x
Insight	Ladino	Allied Seed, L.L.C.	*				
Ivory II	Intermediate	DLF International Seeds		x			
Kopu II	Intermediate	Ampac Seed Co	x	*			
Patriot	Intermediate	Pennington	x	x	x	x	x
Pinnacle	Ladino	Allied Seed, L.L.C.	*		*	x	*
Rampart	Ladino	Allied Seed, L.L.C.		*			
Regal	Ladino	Public		*	*	x	x
RegalGraze	Ladino	Cal/West Seeds	*	*	*	*	*
Resolute	Intermediate	FFR/Southern States	x				
Seminole	Ladino	Saddle Butte Ag. Inc.	x	*			
Will	Ladino	Allied Seed, L.L.C.	*	*	*	*	*
Experimental Varieties							
CW 204	Ladino	Cal/West Seeds	*	*			
CW 9501	Ladino	Cal/West Seeds	*				
KY Synthetic	Intermediate	KY Agr. Exp. Station	*	x	x	x	*
LSC RD19	Ladino	Lewis Seed Co.	x				
LSC RD20	Haifa	Lewis Seed Co.	x				
WC-1	-	Oregro Seeds, Inc.	x		*	x	x
WC-2	-	Oregro Seeds, Inc.	x		x	x	x

¹ Establishment year

² Harvest year

³ x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test. Open boxes indicate the variety was not 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 1998-2007 (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}	00	01	02	03	04	99	00	03	05	98	01	03	05	00	03			
		3yr ⁴	3yr	3yr	3yr	3yr	3yr	3yr	3yr	3yr	2-yr	3yr	2yr	2yr	3-yr	3yr	2yr			
AA117ER	ABI Alfalfa										87						92			90(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						93			94(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	119	102	102			111(16)
Freedom!MR	Barenbrug				118	115	102			106	101				94	111			118	108(8)
FSG 9601	Allied Seed						89													-
Greenstar	Genesis Turf														100					-
Impact	Specialty Seeds	106	97							98										100(3)
Kenland(cert.)	KY Ag.Exp Sta.	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	KY Ag.Exp Sta.	100	93	119	109	90	95	104	98	95	105		93	99	106	102	98			107(15)
Kenway	KY Ag.Exp Sta.	106	104	111	134		97	103	100		94		100		103	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			76	105	84			94(12)
Starfire	Ampac Seed	97	93		99				98							95				96(5)
Triple Trust 350	ABI Alfalfa										92				92					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 3 years, so the final report would be "2002 Red and White Clover Report" archived in the KY Forage website 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 1998-2007 (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}	2003	2004	2003	2005	1998	2003	2003	
			3yr ⁴	3yr	3-yr	3yr	3-yr	3yr	2yr	2yr	
Advantage	Ladino	Allied Seed		125						106	116(2)
Alice	Intermediate	Barenbrug					86				-
Avoca	Dutch	DLF International Seeds					82				-
Barblanca	Intermediate	Barenbrug		92							-
CA ladino	Ladino	Public	100		124	103		100	98		105(5)
Colt	Intermediate	Seed Research of OR		90			114				102(2)
Common	Dutch	Public	100				78				89(2)
Crescendo	Ladino	Cal/West	105				109				107(2)
Excel	Ladino	Allied Seed			100						-
Durana	Dutch	Pennington		94		87	83		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					111				-
Regal	Ladino	Public	99	96	92	107	100	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				136				122(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 3 years, so the final report would be "2004 Red and White Clover Report" archived in the KY Forage website 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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