

2008 Red and White Clover Report

G.L. Olson, S.R. Smith, N.L. Taylor, G.D. Lacefield, and D.C. Ditsch, UK Department of Plant and Soil Sciences

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 15 and 16 show a summary of all clover varieties tested in Kentucky for the past 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, one in 2007 and two in 2008), Princeton (2008), Quicksand (sown in 2008) and Eden Shale (sown in 2008). The soils at Princeton (Crider), Lexington (Maury), Eden Shale (Nicholson) and Quicksand (Nolin) are well-drained silt loams. All are well suited to clover production. Plots were 5 by 20 feet in a randomized complete block design with four replications with a harvested plot area of 5 by 15 feet.

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

Yield data (on a dry matter basis) are presented in Tables 5 through 12. 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 2008 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 13 and 14 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 13 and 14, 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

Table 1. Temperature and rainfall at Lexington, Kentucky in 2006,2007 and 2008.

	2006				2007				2008 ²			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	42	+11	4.77	+1.91	37	+6	2.93	+0.07	33	+2	4.60	+1.74
FEB	36	+1	2.13	-1.08	27	-8	1.83	-1.38	36	+1	5.37	+2.16
MAR	44	0	3.05	-1.35	52	+8	1.97	-2.43	45	+1	6.28	+1.88
APR	59	+4	3.52	-0.36	53	-2	3.87	-0.01	55	0	5.72	+1.84
MAY	62	-2	2.99	-1.48	68	+4	1.45	-3.02	62	-2	4.88	+0.41
JUN	70	-2	1.82	-1.84	74	+2	1.77	-1.89	74	+2	3.30	-0.36
JUL	76	0	5.13	+0.13	74	-2	6.90	+1.90	76	0	2.54	-2.46
AUG	76	+1	3.23	-0.70	80	+5	2.56	-1.37	75	0	1.08	-2.85
SEP	64	-4	9.27	+6.07	72	+4	1.15	-2.05	72	+4	1.21	-1.99
OCT	54	-3	4.88	+2.31	63	+6	5.28	+2.71	57	0	1.35	-1.22
NOV	47	+2	1.78	-1.61	46	+1	2.86	-0.53				
DEC	42	+6	2.45	-1.53	40	+4	5.29	+1.31				
Total			45.02	+0.47			37.86	-6.69			36.33	-0.85

¹ DEP is departure from the long-term average.

² 2008 data is for the ten months through October.

Table 2. Temperature and rainfall at Princeton, Kentucky in 2008.

	2008			
	Temperature		Rainfall	
	°F	DEP ¹	IN	DEP
JAN	37	+3	2.40	-1.40
FEB	39	+1	6.76	+2.33
MAR	48	+1	7.55	+2.61
APR	58	-1	6.56	+1.76
MAY	65	-2	6.19	+1.23
JUN	78	+3	1.24	-2.61
JUL	79	+1	5.12	+0.83
AUG	77	0	0.69	-3.32
SEP	74	+3	0.61	-2.72
OCT	60	+1	2.21	-0.84
NOV				
DEC				
Total			39.33	-2.13

¹ DEP is departure from the long-term average.

Table 3. Temperature and rainfall at Quicksand, Kentucky in 2008.

	2008			
	Temperature		Rainfall	
	°F	DEP ¹	IN	DEP
JAN	34	+3	2.07	-1.22
FEB	38	+5	3.52	-0.08
MAR	46	+5	3.62	-0.72
APR	56	+3	3.99	-0.11
MAY	63	+1	3.69	-1.79
JUN	75	+5	3.96	+0.14
JUL	76	+2	4.96	-0.29
AUG	74	+1	1.16	-2.85
SEP	72	+6	0.15	-3.37
OCT	58	+4	1.02	-1.89
NOV				
DEC				
Total			27.14	-12.18

¹ DEP is departure from the long-term average.

Table 4. Temperature and rainfall at Eden Shale, Kentucky in 2008.

	2008			
	Temperature		Rainfall	
	°F	DEP ¹	IN	DEP
JAN	31	+1	3.63	+1.09
FEB	34	+1	5.15	+2.4
MAR	42	-1	12.29	+7.57
APR	55	+1	4.04	-0.11
MAY	61	-2	6.93	+2.52
JUN	74	+3	7.20	+3.43
JUL	75	0	3.61	-0.92
AUG	75	+1	1.97	-1.76
SEP	71	+3.	1.32	-1.87
OCT	57	0	1.86	-1.13
NOV				
DEC				
Total			48.60	+11.22

¹ DEP is departure from the long-term average.

Table 5. Dry matter yields, seedling vigor and stand persistence of red clover varieties sown August 14, 2006 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 17, 2006	Percent Stand					Yield (tons/acre)						2-year Total
		2006 Oct 17	2007		2008		2007 Total	2008				Total	
			Mar 26	Oct 11	Mar 31	Oct 13		May 17	Jun 19	Jul 18	Aug 14		
Commercial Varieties-Available for Farm Use													
Kenway	4.8	99	93	88	73	35	3.75	0.88	0.65	0.09	0.07	1.69	5.44*
Kenland	4.5	99	95	81	75	33	3.63	0.88	0.67	0.11	0.07	1.73	5.36*
Freedom! MR	4.3	96	95	88	79	45	3.43	0.98	0.69	0.05	0.07	1.80	5.22
Kenton	5.0	100	96	88	79	45	3.63	0.76	0.59	0.09	0.05	1.49	5.12
AA117ER	4.8	100	95	88	81	44	3.60	0.84	0.50	0.07	0.04	1.44	5.05
Cinnamon Plus	5.0	100	95	80	76	33	3.40	0.97	0.48	0.09	0.06	1.60	4.99
Dominion	5.0	100	95	86	75	34	3.38	0.66	0.50	0.07	0.03	1.26	4.65
TripleTrust 350	5.0	99	97	84	81	30	3.35	0.76	0.42	0.07	0.05	1.29	4.64
Freedom!	5.0	98	88	79	54	19	3.17	0.47	0.45	0.05	0.02	0.98	4.16
Red Gold	3.5	91	95	60	20	6	3.21	0.26	0.18	0.03	0.03	0.49	3.70
Solid	4.8	98	90	44	28	6	3.06	0.33	0.21	0.01	0.01	0.56	3.62
Common A	4.8	78	95	16	3	4	2.91	0.06	0.03	0.01	0.00	0.10	3.01
Experimental Varieties													
KY Tetraploid	5.0	100	98	85	81	51	3.88	1.10	0.78	0.18	0.12	2.18	6.06*
CW 10002	5.0	100	98	90	86	53	3.37	1.03	0.68	0.10	0.07	1.88	5.25*
CW 20001	5.0	100	97	88	83	46	3.36	0.95	0.58	0.12	0.04	1.68	5.04
FSG9603	5.0	100	94	89	75	43	3.46	0.86	0.53	0.09	0.07	1.55	5.01
Low Phenolic	4.5	99	96	73	60	20	3.32	0.79	0.54	0.08	0.03	1.44	4.75
FSG9602	4.8	99	95	84	76	38	3.16	0.75	0.46	0.08	0.05	1.35	4.51
IS-TP3	5.0	100	95	80	53	24	3.27	0.36	0.33	0.09	0.04	0.82	4.09
M101RC1	4.8	98	89	28	17	4	2.82	0.13	0.13	0.01	0.02	0.29	3.11
Mean	4.8	97.6	94.5	74.8	62.6	30.5	3.36	0.69	0.47	0.07	0.05	1.28	4.64
CV,%	8.5	10.7	4.2	13.8	21.3	43.8	10.60	39.45	27.79	46.63	77.47	30.41	12.70
LSD,0.05	0.6	14.8	5.6	14.6	18.9	18.9	0.50	0.39	0.19	0.05	0.05	0.55	0.83

¹Vigor 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.

choosing a variety of clover rather than results from one test year as is reported in Tables 5 through 12. Make sure seed of the variety selected is properly labeled and will be available when needed.

Tables 15 and 16 are summaries of yield data from 1998-2008 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 Tables 15 and 16, 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 15 and 16 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—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

Authors

- G.L. Olson, Research Specialist, Forages
 S.R. Smith, Extension Associate Professor, Forages
 N.L. Taylor, Professor, Clover Breeding
 G.D. Lacefield, Extension Professor, Forages
 D.C. Ditsch, Extension Associate Professor, Feed Production

Table 6. Dry matter yields and stand persistence of red clover varieties sown April 8, 2008 at Lexington, Kentucky.

Variety	Percent Stand Oct. 21, 2008	Yield (tons/acre)		
		2008		
		Jul 1	Aug 14	Total
Commercial Varieties-Available for Farm Use				
Kenway	83	0.62	0.31	0.93*
Kenton	85	0.64	0.25	0.89*
Freedom!	69	0.50	0.31	0.81*
Cinnamon Plus	81	0.44	0.21	0.65*
Common O	69	0.36	0.28	0.64*
Plus II	86	0.33	0.16	0.48
Common C	78	0.34	0.14	0.48
Rustler	49	0.29	0.16	0.45
Freedom! MR	68	0.27	0.15	0.42
Kenland	58	0.22	0.18	0.40
Starfire II	65	0.25	0.15	0.39
Experimental Varieties				
CW202	89	0.43	0.17	0.60*
B8.0083	69	0.39	0.17	0.56
KY Tetraploid	66	0.35	0.20	0.55
PG606	73	0.33	0.15	0.48
RC0601	74	0.33	0.14	0.47
RC0501	71	0.32	0.15	0.46
GAC1RC	74	0.26	0.17	0.43
CW040040	74	0.27	0.13	0.40
GO-ABR	68	0.21	0.12	0.32
Mean	72.0	0.36	0.19	0.54
CV,%	17.5	44.99	52.59	43.73
LSD,0.05	17.9	0.23	0.14	0.34

*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 red clover varieties sown April 17, 2008 at Princeton, Kentucky.

Variety	Percent Stand		Yield (tons/acre)		
	2008		2008		
	May 21	Oct 30	Jul 29	Aug 27	Total
Commercial Varieties-Available for Farm Use					
Freedom!	94	90	0.46	0.44	0.90*
Morning Star	95	85	0.43	0.46	0.89*
Robust II	93	93	0.38	0.45	0.83*
Starfire II	98	89	0.39	0.42	0.81*
Kenton	97	90	0.37	0.41	.077*
Dominion	95	83	0.34	0.41	0.75*
Kenland (certified)	99	86	0.35	0.39	0.74*
Juliet	87	93	0.36	0.38	0.74*
Cinnamon Plus	100	88	0.36	0.37	0.73*
Rocket	98	85	0.34	0.36	0.70*
Common O	93	91	0.34	0.34	0.68*
Kenway	90	86	0.36	0.32	0.68*
Red Gold	83	83	0.30	0.29	0.59
Kenland (uncertified)	98	69	0.28	0.29	0.57
Experimental Varieties					
KY Tetraploid	99	91	0.37	0.38	0.75*
RC005	97	89	0.35	0.35	0.70*
RC006	98	83	0.31	0.32	0.63*
Mean	95.0	86.5	0.36	0.37	0.73
CV,%	9.8	10.8	28.48	30.06	27.95
LSD,0.05	13.2	13.2	0.15	0.16	0.29

*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 clover varieties sown April 10, 2008 at Quicksand, Kentucky.

Variety	Percent Stand Nov 5, 2008	Yield (tons/acre)		
		2008		
		Jul 18	Aug 21	Total
Commercial Varieties-Available for Farm Use				
Freedom!	100	0.61	0.73	1.34*
Common O	84	0.60	0.68	1.28*
Cinnamon Plus	99	0.58	0.69	1.27*
Kenton	100	0.51	0.69	1.20*
Kenway	99	0.54	0.58	1.12*
Starfire II	99	0.53	0.54	1.07*
Rustler	92	0.50	0.54	1.04*
Plus II	98	0.41	0.62	1.03*
Kenland	95	0.49	0.37	0.86*
Experimental Varieties				
CW 202	99	0.66	0.63	1.29*
B8.0083	96	0.68	0.57	1.25*
CW 040040	99	0.51	0.74	1.24*
RC 0601	99	0.47	0.58	1.05*
RC 0501	99	0.50	0.53	1.03*
KY Tetraploid	90	0.43	0.43	0.86*
GO-ABR	56	0.26	0.19	0.45
Mean	93.7	0.52	0.57	1.08
CV,%	9.7	39.82	39.83	34.70
LSD,0.05	13.2	0.30	0.33	0.55

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

Table 9. Dry matter yields and stand persistence of red clover varieties sown April 10, 2008 at the Eden Shale Farm near Owenton, Kentucky.

Variety	Percent Stand		Yield (tons/acre)		
	2008		2008		
	Jun 17	Oct 15	Jul 2	Aug 8	Total
Commercial Varieties-Available for Farm Use					
Starfire II	99	100	0.72	1.79	2.52*
Juliet	100	100	0.82	1.47	2.30*
Red Gold	99	99	0.71	1.55	2.27*
Cinnamon Plus	99	99	0.71	1.56	2.27*
Rocket	100	100	0.70	1.54	2.24*
Kenland (certified)	99	100	0.59	1.56	2.16
Dominion	100	100	0.66	1.49	2.15
Freedom!	100	100	0.63	1.52	2.15
Robust II	97	98	0.63	1.52	2.15
Morning Star	96	97	0.57	1.53	2.10
Kenland (uncertified)	90	88	0.26	1.38	1.64
Experimental Varieties					
KY Tetraploid	98	100	0.80	1.74	2.54*
RC005	98	100	0.61	1.73	2.34*
RC006	99	100	0.70	1.38	2.08
Mean	98.1	98.4	0.65	1.56	2.21
CV,%	3.5	2.9	24.36	14.79	11.89
LSD,0.05	4.9	4.1	0.23	0.33	0.38

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

Variety	Seedling Vigor ¹ Oct 17, 2006	Percent Stand					Yield (tons/acre)										2-year Total
		2006		2007		2008	2007					2008					
		Oct 17	Mar 26	Oct 12	Apr 1	Oct 21	May 15	Jun 26	Jul 23	Aug 15	Total	May 20	Jun 24	Aug 5	Total		
Commercial Varieties-Available for Farm Use																	
Will	3.8	91	80	85	58	38	0.84	0.32	0.71	0.37	2.24	0.44	0.48	0.25	1.17	3.41*	
Crescendo	4.5	94	81	80	48	40	0.68	0.33	0.68	0.35	2.05	0.33	0.33	0.22	0.88	2.93*	
Insight	4.5	94	69	85	53	20	0.61	0.31	0.65	0.43	2.00	0.20	0.27	0.21	0.68	2.68	
RegalGraze	4.0	73	80	83	55	43	0.57	0.31	0.67	0.31	1.86	0.30	0.27	0.24	0.80	2.67	
Pinnacle	4.5	94	80	78	43	50	0.55	0.32	0.65	0.34	1.86	0.19	0.23	0.24	0.65	2.51	
Kopu II	4.5	96	69	88	58	36	0.50	0.24	0.47	0.30	1.52	0.18	0.18	0.15	0.52	2.03	
Durana	3.3	96	78	83	70	35	0.65	0.13	0.20	0.25	1.23	0.37	0.23	0.14	0.74	1.97	
Patriot	3.0	90	74	79	55	38	0.56	0.23	0.34	0.20	1.33	0.19	0.20	0.11	0.49	1.82	
Seminole	3.5	95	65	75	45	35	0.41	0.17	0.27	0.20	1.05	0.17	0.11	0.15	0.43	1.48	
Resolute	2.5	98	88	81	38	40	0.54	0.13	0.20	0.14	1.01	0.14	0.07	0.11	0.32	1.33	
Avoca	1.3	41	56	60	25	30	0.53	0.12	0.24	0.12	1.01	0.07	0.05	0.09	0.22	1.23	
Colt	2.3	95	87	79	55	35	0.52	0.13	0.10	0.11	0.86	0.20	0.07	0.06	0.33	1.19	
Experimental Varieties																	
CW9501	4.3	98	83	81	43	28	0.75	0.36	0.63	0.42	2.16	0.16	0.26	0.22	0.64	2.81*	
KYSynthetic	3.0	95	95	84	65	38	0.98	0.26	0.43	0.24	1.90	0.32	0.33	0.14	0.79	2.69	
CW204	4.0	85	75	78	40	40	0.64	0.24	0.65	0.27	1.81	0.31	0.23	0.27	0.80	2.61	
WC-2	3.8	94	53	63	53	33	0.39	0.20	0.34	0.31	1.24	0.27	0.14	0.20	0.61	1.85	
LSC-RD19	4.0	96	44	58	58	33	0.25	0.20	0.28	0.24	0.97	0.28	0.31	0.20	0.79	1.76	
WC-1	3.0	90	38	50	33	43	0.31	0.13	0.19	0.19	0.83	0.11	0.06	0.18	0.35	1.18	
LSC-RD20 (Braidwood)	3.5	90	10	36	25	20	0.02	0.04	0.06	0.16	0.28	0.13	0.24	0.18	0.55	0.83	
Mean	3.5	90.0	69.0	73.8	48.2	35.3	0.54	0.22	0.41	0.26	1.43	0.23	0.21	0.18	0.62	2.05	
CV,%	20.1	15.0	24.9	18.3	36.6	37.1	31.05	39.35	31.07	31.47	22.35	53.16	44.30	39.27	35.32	20.61	
LSD,0.05	1.0	19.0	24.2	19.1	25.0	18.6	0.24	0.12	0.18	0.12	0.45	0.17	0.13	0.10	0.31	0.60	

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

Variety	Percent Stand				Yield (tons/acre)					2-year Total
	2007		2008		2007		2008			
	Oct 12	Apr 1	Oct 21	Total	May 20	Jun 24	Aug 5	Total		
Commercial Varieties-Available for Farm Use										
Will	100	100	85	0.85	0.98	0.94	0.45	2.37	3.22*	
RegalGraze	100	95	79	1.07	0.73	0.79	0.41	1.94	3.01*	
Regal	100	88	63	1.01	0.58	0.71	0.37	1.67	2.68*	
Patriot	100	98	74	0.77	0.63	0.59	0.25	1.48	2.24	
Kopu II	100	90	65	0.87	0.42	0.44	0.32	1.17	2.04	
Durana	100	91	73	0.56	0.67	0.49	0.18	1.34	1.89	
Ivory II	100	83	78	0.53	0.49	0.52	0.31	1.32	1.84	
Rampart	100	79	33	0.84	0.23	0.41	0.25	0.89	1.73	
Seminole	100	76	45	0.85	0.23	0.31	0.31	0.85	1.70	
Common	100	30	19	0.81	0.06	0.12	0.16	0.34	1.15	
Experimental Varieties										
CW204	100	95	88	1.14	0.80	0.75	0.46	2.01	3.14*	
KYSynthetic	100	100	89	0.72	0.71	0.80	0.35	1.86	2.58*	
Mean	100.0	85.4	65.6	0.83	0.54	0.57	0.32	1.44	2.27	
CV,%	0.0	12.0	23.3	26.25	29.02	23.09	26.57	21.15	19.84	
LSD,	0.0	14.7	22.0	0.31	0.23	0.19	0.12	0.44	0.65	

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

Table 12. Dry matter yields and stand persistence of white clover varieties sown April 8, 2008 at Lexington, Kentucky.

Variety	Percent Stand Oct 21, 2008	Yield (tons/acre)		
		2008		
		Jul 1	Aug 22	Total
Commercial Varieties-Available for Farm Use				
Will	71	0.13	0.38	0.51
Patriot	76	0.13	0.37	0.50
Companion	81	0.14	0.35	0.49
RegalGraze	64	0.10	0.38	0.48
Rampart	63	0.11	0.35	0.46
Regal	53	0.07	0.39	0.46
Durana	80	0.10	0.33	0.42
Kopu II	60	0.08	0.31	0.39
Salina	86	0.04	0.22	0.26
Experimental Varieties				
CW0401	79	0.17	0.59	0.75*
GO-ABAR	83	0.22	0.52	0.74*
GO-7SG	88	0.17	0.46	0.63*
GO-BSG	86	0.15	0.48	0.62*
KYSelect	88	0.15	0.42	0.57*
B-7.1499	71	0.09	0.44	0.54*
GO-AJ	63	0.13	0.40	0.53*
CW204	70	0.11	0.41	0.52*
GO-HSM	84	0.08	0.37	0.45
GO-ABC	73	0.09	0.33	0.41
B-7.1749	49	0.07	0.26	0.33
AGRTRxA103	19	0.02	0.14	0.16
AGRTRxA104	30	0.04	0.10	0.14
Mean	68.8	0.11	0.36	0.47
CV,%	23.8	55.81	39.18	36.78
LSD,0.05	23.2	0.09	0.20	0.24

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

Table 13. Performance of red clover varieties across years and locations.							
Variety	Proprietor/KY Distributor	Lexington			Eden Shale	Princeton	Quicksand
		2006¹	2008	2008	2008	2008	2008
		07²	08	08	08	08	08
Commercial Varieties-Available for Farm Use							
AA117ER	ABI Alfalfa	*	x ³				
Cinnamon Plus	FFR/Southern States	*	x	*	*	*	*
Common A	Public	x	x				
Common C	Public			x			
Common O	Public			*		*	*
Dominion	Seed Research of Oregon	*	x		x	*	
Freedom!	Barenbrug	x	x	*	x	*	*
Juliet	Caudill Seed Company				*	*	
Kenland, certified	KY Agric. Exp. Station	*	*	x	x	*	*
Kenland, uncertified	Public				x	x	
Kenton (KNARS)	KY Agr. Exp. Station	*	x	*		*	*
Kenway (KVMRS)	KY Agr. Exp. Station	*	*	*		*	*
Morning Star	Cal/West Seeds				x	*	
Plus II	Allied Seed, L.L.C.			x			*
Red Gold	Pro Seeds Marketing	x	x		*	x	
Robust II	Seed Research of Oregon				x	*	
Rocket	Seed Research of Oregon				*	*	
Rustler	Oregro Seeds			x			*
Solid	Improved Forages Inc.	x	x				
Starfire II	Cal/West & Ampac Seed			x	*	*	*
TripleTrust 350	ABI Alfalfa	x	x				
Experimental Varieties							
B8.0083	Blue Moon Farms			x			*
CW040040	Cal/West Seeds			x			*
CW10002	Producers Choice	x	*				
CW202	Cal/West Seeds			*			*
CW20001	Cal/West Seeds	x	*				
IS-TP3	DLF International Seeds	x	x				
Freedom! MR	KY Agr. Exp. Station	*	*	x			
GAC1RC	AgResearch,USA			x			
GO-ABR	Grasslands Oregon			x			x
KY Low phenolic	KY Agr. Exp. Station	x	x				
KY Tetraploid	KY Agr. Exp. Station	*	*	x	*	*	*
M101-RC1	Oregro Seeds	x	x				
PG606	AgResearch,USA			x			
RC005	FFR/Southern States				*	*	
RC006	FFR/Southern States				x	*	
RC0501	FFR/Southern States			x			*
RC0601	FFR/Southern States			x			*
RC9602	Allied Seed, L.L.C.	x	x				
RC9603	Allied Seed, L.L.C.	*	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 14. Performance of white clover varieties across years.								
Variety	Type	Proprietor/KY Distributor	Lexington					
			2006¹		2007		2008	
			07²	08	07	08	08	
Commercial Varieties-Available for Farm Use								
Avoca	Dutch	DLF International Seeds	x ³	x				
Colt	Intermediate	Seed Research of Oregon	x	x				
Common	Dutch	Public			x	x		
Companion	Ladino	Oregro Seeds, Inc.						x
Cresendo	Ladino	Cal/West Seeds	*	*				
Durana	Dutch	Pennington	x	x	x	x	x	x
Insight	Ladino	Allied Seed, L.L.C.	*	x				
Ivory II	Intermediate	DLF International Seeds			x	x		
Kopu II	Intermediate	Ampac Seed Co	x	x	*	x	x	x
Patriot	Intermediate	Pennington	x	x	x	x	x	x
Pinnacle	Ladino	Allied Seed, L.L.C.	*	x				
Rampart	Ladino	Allied Seed, L.L.C.			*	x	x	
Regal	Ladino	Public			*	x	x	
RegalGraze	Ladino	Cal/West Seeds	*	x	*	*	*	x
Resolute	Intermediate	FFR/Southern States	x	x				
Seminole	Ladino	Saddle Butte Ag. Inc.	x	x	*	x		
Will	Ladino	Allied Seed, L.L.C.	*	*	*	*		x
Experimental Varieties								
B-7.1499		Blue MoonFarms						*
B-7.1749		Blue MoonFarms						x
CW0401	Ladino	Cal/West Seeds						*
CW 204	Ladino	Cal/West Seeds	*	x	*	*	*	*
CW 9501	Ladino	Cal/West Seeds	*	x				
GO-ABAR	Ladino	Grasslands Oregon						*
GO-ABC	Intermediate	Grasslands Oregon						x
GO-AJ	Intermediate	Grasslands Oregon						*
GO-BSG	Intermediate	Grasslands Oregon						*
GO-HSM	Intermediate	Grasslands Oregon						x
GO-7SG	Ladino	Grasslands Oregon						*
KY Synthetic	Intermediate	KY Agr. Exp. Station	*	x	x	x	*	*
LSC RD19	Ladino	Lewis Seed Co.	x	x				
LSC RD20	Haifa	Lewis Seed Co.	x	x				
WC-1	-	Oregro Seeds, Inc.	x	x				
WC-2	-	Oregro Seeds, Inc.	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 15. Summary of Kentucky Red Clover Yield Trials 1998-2008 (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	06	99	00	03	05	98	01	03	05	00		03
		3yr ⁴	3yr	3yr	3yr	3yr	3yr	2-yr	3yr	3yr	3yr	2-yr	3yr	2yr	2yr	3-yr	3yr		2yr
AA117ER	ABI Alfalfa							110											96(3)
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		109				112				103			105(4)
Dominion	Seed Research of OR							102				95				93			97(3)
Duration	Cisco Co.			86	100									106					97(3)
Emarwan	Turf-Seed						91							101					96(2)
Freedom!	Barenbrug	108	105	127	123	96	118	91	103	105	110	136	109	111	103	119	102	102	110(17)
Freedom!MR	Barenbrug				118	115	102	114			106	101			94	111		118	109(9)
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	117	104	102	92	112	111	88	105	104	98	110(17)
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	112	104	98	95	105		93	99	106	102	98	101(16)
Kenway	KY Ag.Exp Sta.	106	104	111	134		97	119	103	100		94		100		103	102		106(12)
Mammoth	Public								61										-
Plus	Allied Seed	113			113				110								97		108(4)
Prima	Public	92			74														83(2)
Red Gold								81											-
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		79	112	98	87	86	94			76	105	84	92(13)
Starfire	Ampac Seed	97	93		99					98							95		96(5)
Triple Trust 350	ABI Alfalfa							101				92				92			95(3)
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 16. Summary of Kentucky White Clover Yield Trials 1998-2008 (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	2006	2007	2003	2005	1998	2003	2003	
			3yr ⁴	3yr	3-yr	2-yr	2-yr	3yr	3-yr	3yr	2yr	2yr	
Advantage	Ladino	Allied Seed, L.L.C.		125								106	116(2)
Alice	Intermediate	Barenbrug							86				-
Avoca	Dutch	DLF International Seeds				59			82				71(2)
Barblanca	Intermediate	Barenbrug		92									-
CA ladino	Ladino	Public	100		124			103		100	98		105(5)
Colt	Intermediate	Seed Research of OR		90		57			114				87(3)
Common	Dutch	Public	100				53		78				77(3)
Crescendo	Ladino	Cal/West Seeds	105			140			109				118(3)
Excel	Ladino	Allied Seed, L.L.C.			100								-
Durana	Dutch	Pennington		94		94	88	87	83		101	95	92(7)
Insight	Ladino	Allied Seed, L.L.C.				128							-
Ivory	Intermediate	Cebeco	96										-
Ivory II	Intermediate	DLF International Seeds					86						-
Jumbo	Ladino	Ampac Seed	93										-
Kopu II	Intermediate	Ampac Seed	97			97	95						96(3)
Patriot	Intermediate	Pennington		103		87	104	104	100		98	99	99(7)
Pinnacle	Ladino	Allied Seed, L.L.C.				120			111				116(2)
Rampart	Ladino	Allied Seed, L.L.C.					80						-
Regal	Ladino	Public	99	96	92		125	107	100	100	104		103(8)
RegalGraze	Ladino	Cal/West Seeds				127	140						134(2)
Resolute	Intermediate	FFR/Southern States				63							-
Seminole	Ladino	Saddle Butte Ag. Inc			108	70	79						86(3)
Super Haifa	Intermediate	Allied Seed, L.L.C.			77								-
Tillman II	Ladino	Caudill Seed	103										-
Will	Ladino	Allied Seed, L.L.C.	107			162	150		136				139(4)

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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