

# 2009 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 15 and 16 show a summary of all clover varieties tested in Kentucky for the past 10 years. The UK Forage Extension website at <[www.uky.edu/Ag/Forage](http://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 the amount of 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 2008 and two in 2009), Princeton (2008 and 2009), 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 produc-

**Table 1. Temperature and rainfall at Lexington, Kentucky in 2008 and 2009.**

	2008				2009 <sup>2</sup>			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	32	+2	3.91	+1.05	29	-2	4.32	+1.46
FEB	36	+1	6.11	+2.90	38	+3	2.53	-0.68
MAR	44	+1	6.51	+1.91	48	+4	2.39	-2.01
APR	55	0	5.89	+2.01	56	+1	4.79	+0.91
MAY	62	-2	4.33	+0.14	65	+1	6.04	+1.57
JUN	74	+2	3.59	-0.07	74	+2	5.19	+1.53
JUL	76	0	3.41	-1.59	72	-4	7.57	+2.57
AUG	75	0	2.18	-1.75	73	-2	4.53	+0.60
SEP	72	+4	1.42	-1.78	69	+1	5.90	+2.70
OCT	57	0	1.53	-1.04	53	-4	5.77	+3.20
NOV	43	-2	2.53	-0.86				
DEC	35	-1	6.03	+2.05				
Total			47.24	+2.69			49.03	+11.85

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2009 data is for the ten months through October.

**Table 2. Temperature and rainfall at Princeton, Kentucky in 2008 and 2009.**

	2008				2009 <sup>2</sup>			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	37	+3	2.40	-1.40	33	-1	0.94	-2.86
FEB	39	+1	6.76	+2.33	42	+4	3.28	-1.15
MAR	48	+1	7.55	+2.61	53	+6	2.89	-2.05
APR	58	-1	6.56	+1.76	58	-1	5.35	+0.55
MAY	65	-2	6.19	+1.23	67	0	6.14	+1.18
JUN	78	+3	1.24	-2.61	77	+2	7.97	+4.12
JUL	79	+1	5.12	+0.83	74	-4	7.45	+3.16
AUG	77	0	0.69	-3.32	75	-2	2.44	-1.60
SEP	74	+3	0.61	-2.72	71	0	4.61	+1.28
OCT	60	+1	2.21	-0.84	55	-4	9.08	+6.03
NOV	46	-1	2.59	-2.04				
DEC	39	0	6.49	+1.95				
Total			48.95	-2.18			50.12	+8.66

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2009 data is for the ten months through October.

tion (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 2009 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 un-

known,” 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

**Table 3. Temperature and rainfall at Quicksand, Kentucky in 2008 and 2009.**

	2008				2009 <sup>2</sup>			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	34	+3	2.07	-1.22	30	-1	4.81	+1.52
FEB	38	+5	3.52	-0.08	40	+7	1.23	+2.37
MAR	46	+5	3.62	-0.72	49	+8	3.61	-0.73
APR	56	+3	3.99	-0.11	56	+3	3.34	-0.76
MAY	63	+1	3.69	-1.79	66	+4	8.81	+4.33
JUN	75	+5	3.96	+0.14	72	+2	4.84	+1.02
JUL	76	+2	5.88	+0.63	71	-3	4.02	-1.23
AUG	74	+1	1.16	-2.85	73	0	1.86	-2.15
SEP	72	+6	0.64	-2.88	69	+3	4.08	+0.56
OCT	58	+4	1.28	-1.63	54	0	3.97	+1.06
NOV	44	+2	2.71	-1.17				
DEC	37	+4	4.81	+0.67				
Total			36.33	-11.01			40.57	+1.25

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2009 data is for the ten months through October.

**Table 4. Temperature and rainfall at Eden Shale, Kentucky in 2008 and 2009.**

	2008				2009 <sup>2</sup>			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	31	+1	3.63	+1.09	28	-2	3.46	+0.92
FEB	34	+1	5.15	+2.4	37	+4	2.70	-0.05
MAR	42	-1	12.29	+7.57	48	+5	2.46	-2.26
APR	55	+1	4.04	-0.11	55	+1	5.88	+1.73
MAY	61	-2	6.93	+2.52	65	+2	6.01	+1.60
JUN	74	+3	7.20	+3.43	71	0	6.72	+2.95
JUL	75	0	3.61	-0.92	70	-5	6.03	+1.50
AUG	75	+1	1.97	-1.76	72	-2	3.41	-0.32
SEP	71	+3	1.32	-1.87	67	-1	4.21	+1.02
OCT	57	0	1.86	-1.13	53	-4	8.15	+5.16
NOV	43	-2	2.60	-0.95				
DEC	34	-1	4.53	+1.10				
Total			55.13	+11.37			49.03	+12.25

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2009 data is for the ten months through October.

(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 based on the 0.05 LSD. 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 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 1998-2009 of commercial varieties that have been entered in the Kentucky trials.** The data are 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 consid-

eration. 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 the UK Forage website, [www.uky.edu/Ag/Forage](http://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
- PPFS-AG-F-04—“Emergency” Inoculation for Poorly Nodulated Legumes

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**Table 5. Dry matter yields and stand persistence of red clover varieties sown April 8, 2008 at Lexington, Kentucky.**

Variety	Percent Stand			Yield (tons/acre)								2-year Total
	2008		2009	2008		2009						
	Oct 21	Mar 24	Oct 7	Total	May 18	Jun 19	Jul 20	Aug 17	Sep 17	Total		
<b>Commercial Varieties—Available for Farm Use</b>												
Plus II	86	86	78	0.48	2.09	1.01	0.72	0.36	0.38	4.56	5.05*	
Kenton	85	84	68	0.89	1.81	1.12	0.52	0.29	0.28	4.03	4.92*	
Kenway	83	81	70	0.93	1.59	1.06	0.54	0.36	0.35	3.91	4.84*	
Cinnamon Plus	81	83	75	0.65	1.59	0.91	0.61	0.37	0.33	3.81	4.47*	
Freedom! MR	68	70	68	0.42	1.48	1.10	0.61	0.41	0.43	4.02	4.44*	
Freedom!	69	69	30	0.81	1.54	1.02	0.38	0.20	0.16	3.31	4.11	
Starfire II	65	65	60	0.39	1.45	0.86	0.61	0.34	0.28	3.54	3.93	
Kenland (certified)	58	53	50	0.40	1.49	0.98	0.45	0.26	0.29	3.47	3.87	
Rustler	49	49	28	0.45	1.29	0.80	0.33	0.25	0.18	2.84	3.29	
Common C	78	76	15	0.48	1.54	0.39	0.16	0.08	0.03	2.19	2.67	
Common O	69	58	18	0.64	1.00	0.57	0.09	0.05	0.04	1.76	2.39	
<b>Experimental Varieties</b>												
CW202	89	88	76	0.60	1.86	0.99	0.64	0.36	0.33	4.19	4.79*	
KY Tetraploid	66	64	60	0.55	1.58	1.02	0.80	0.40	0.43	4.23	4.78*	
RC0501	71	71	53	0.46	1.75	0.93	0.61	0.30	0.29	3.87	4.34*	
CW040040	74	75	66	0.40	1.69	0.95	0.56	0.28	0.26	3.73	4.14	
RC0601	74	66	38	0.47	1.62	0.81	0.48	0.23	0.20	3.34	3.81	
PG606	73	71	30	0.48	1.52	0.88	0.46	0.18	0.12	3.16	3.64	
B8.0083	69	65	28	0.56	1.56	0.84	0.34	0.18	0.13	3.05	3.61	
GAC1RC	74	75	25	0.43	1.82	0.63	0.23	0.09	0.07	2.84	3.27	
GO-ABR	68	53	25	0.32	0.58	0.69	0.31	0.18	0.11	1.88	2.20	
Mean	72.0	70.0	47.9	0.54	1.54	0.88	0.47	0.26	0.23	3.39	3.93	
CV,%	17.5	18.9	26.9	43.73	18.17	11.59	21.86	30.28	34.50	14.39	14.53	
LSD,0.05	17.9	18.7	18.2	0.34	0.40	0.14	0.15	0.11	0.11	0.69	0.81	

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

**Table 6. Dry matter yields and stand persistence of red clover varieties sown April 17, 2008 at Princeton, Kentucky.**

Variety	Percent Stand				Yield (tons/acre)								2-year Total
	2008		2009		2008 Total	2009					Total		
	May 21	Oct 30	Apr 17	Oct 28		May 11	Jun 22	Jul 23	Aug 22	Sep 29			
<b>Commercial Varieties—Available for Farm Use</b>													
Freedom!	94	90	99	59	0.90	1.60	1.56	0.55	0.44	0.24	4.38	5.28*	
Kenton	97	90	96	68	0.77	1.57	1.60	0.52	0.45	0.32	4.46	5.23*	
Starfire II	98	89	93	88	0.81	1.58	1.51	0.55	0.43	0.30	4.37	5.18*	
Robust II	93	93	95	75	0.83	1.63	1.45	0.51	0.43	0.30	4.32	5.16*	
Kenland (certified)	99	86	93	63	0.74	1.31	1.57	0.60	0.49	0.34	4.31	5.05*	
Rocket	98	85	95	58	0.70	1.46	1.49	0.55	0.40	0.30	4.21	4.91*	
Cinnamon Plus	100	88	96	65	0.73	1.35	1.52	0.48	0.44	0.30	4.09	4.83*	
Kenway	90	86	99	73	0.68	1.32	1.58	0.51	0.43	0.30	4.14	4.82*	
Dominion	95	83	93	61	0.75	1.32	1.57	0.49	0.44	0.24	4.06	4.81*	
Juliet	87	93	97	48	0.74	1.49	1.55	0.50	0.25	0.19	3.98	4.71*	
Morning Star	95	85	94	50	0.89	1.43	1.38	0.34	0.35	0.20	3.71	4.60*	
Red Gold	83	83	93	38	0.59	1.35	1.46	0.48	0.42	0.14	3.85	4.44	
Common O	93	91	94	49	0.68	1.19	1.52	0.43	0.35	0.19	3.69	4.36	
Kenland (uncertified)	98	69	73	31	0.57	1.27	1.34	0.37	0.32	0.13	3.43	4.00	
<b>Experimental Varieties</b>													
KY Tetraploid	99	91	96	80	0.75	1.45	1.58	0.68	0.44	0.34	4.50	5.25*	
RC 005	97	89	97	69	0.70	1.26	1.31	0.55	0.41	0.32	3.84	4.54*	
RC 006	98	83	95	48	0.63	1.18	1.32	0.50	0.43	0.25	3.68	4.30	
Mean	95.0	86.5	93.8	59.9	0.73	1.39	1.49	0.51	0.41	0.26	4.06	4.79	
CV,%	9.8	10.8	9.0	34.8	27.95	19.07	12.31	17.21	16.95	31.89	10.69	11.63	
LSD,0.05	13.2	13.2	12.0	29.6	0.29	0.38	0.26	0.12	0.10	0.12	0.62	0.79	

\* 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 10, 2008 at Quicksand, Kentucky.**

Variety	Percent Stand			Yield (tons/acre)							2-year Total
	2008	2009		2008 Total	2009				Total		
	Nov 5	Apr 8	Nov 5		May 28	Jun 29	Jul 27	Sep 23			
<b>Commercial Varieties—Available for Farm Use</b>											
Cinnamon Plus	99	99	67	1.27	2.19	1.04	0.48	0.59	4.30	5.57*	
Freedom!	100	100	68	1.34	1.78	1.12	0.33	0.75	3.98	5.32*	
Kenland (certified)	95	99	69	0.86	2.10	1.12	0.37	0.74	4.33	5.19*	
Rustler	92	94	19	1.04	2.05	1.14	0.21	0.65	4.05	5.09*	
Starfire II	99	99	63	1.07	1.59	1.05	0.40	0.83	3.86	4.93*	
Common O	84	84	21	1.28	1.56	0.75	0.16	0.70	3.30	4.76*	
Plus II	98	98	53	1.03	1.89	1.07	0.33	0.48	3.57	4.73*	
Kenway	99	100	76	1.12	1.73	1.11	0.32	0.49	3.61	4.69*	
Kenton	100	100	76	1.20	1.61	0.78	0.37	0.72	3.48	4.68*	
<b>Experimental Varieties</b>											
B8.0083	96	99	31	1.25	1.91	1.46	0.29	0.61	4.27	5.52*	
CW 202	99	100	50	1.29	2.12	0.92	0.38	0.68	4.10	5.39*	
RC 0501	99	100	65	1.03	1.82	1.13	0.40	0.67	3.95	5.08*	
CW 040040	99	99	76	1.24	1.91	1.12	0.34	0.58	3.83	5.31*	
KY Tetraploid	90	93	78	0.86	1.89	0.92	0.42	0.68	3.95	4.83*	
RC 0601	99	100	63	1.05	1.79	0.93	0.39	0.57	3.56	4.61*	
GO-ABR	56	51	12	0.45	1.76	0.99	0.09	0.27	3.11	3.45	
Mean	93.7	94.3	55.1	1.08	1.85	1.04	0.33	0.63	3.85	4.98	
CV,%	9.7	9.2	26.2	34.70	17.18	25.65	30.34	44.92	14.34	14.76	
LSD,0.05	13.2	12.7	21.0	0.55	0.46	0.39	0.14	0.45	0.87	1.16	

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

Variety	Percent Stand				Yield (tons/acre)								2-year Total
	2008		2009		2008	2009					Total		
	Jun 17	Oct 15	Mar 24	Oct 15	Total	May 22	Jun 24	Jul 21	Aug 24	Sep 29			
<b>Commercial Varieties—Available for Farm Use</b>													
Starfire II	99	100	100	98	2.52	1.93	0.98	0.90	0.74	0.51	5.06	7.57*	
Cinnamon Plus	99	99	100	96	2.27	1.82	0.96	0.78	0.69	0.48	4.73	7.00*	
Rocket	100	100	100	99	2.24	1.75	1.00	0.78	0.73	0.50	4.75	7.00*	
Dominion	100	100	100	99	2.15	1.83	1.02	0.77	0.74	0.46	4.82	6.97*	
Robust II	97	98	100	99	2.15	1.82	0.97	0.78	0.72	0.50	4.79	6.93*	
Kenland (certified)	99	100	100	98	2.16	1.61	1.14	0.83	0.67	0.48	4.73	6.88	
RedGold	99	99	99	97	2.27	1.72	0.94	0.76	0.70	0.43	4.56	6.82	
Freedom!	100	100	100	96	2.15	1.46	1.10	0.71	0.65	0.41	4.33	6.48	
Juliet	100	100	99	93	2.30	1.31	1.02	0.48	0.54	0.41	3.77	6.07	
Morning Star	96	97	98	88	2.10	1.47	1.02	0.44	0.55	0.39	3.86	5.96	
Kenland (uncertified)	90	88	81	40	1.64	1.39	0.92	0.34	0.50	0.36	3.51	5.15	
<b>Experimental Varieties</b>													
RC005	98	100	100	99	2.34	1.73	1.00	0.85	0.76	0.58	4.91	7.25*	
KY Tetraploid	98	100	99	98	2.54	1.56	1.07	0.98	0.61	0.47	4.69	7.22*	
RC006	99	100	100	98	2.08	1.72	0.97	0.76	0.69	0.48	4.62	6.70	
Mean	98.1	98.4	98.1	92.6	2.21	1.65	1.01	0.73	0.66	0.46	4.51	6.72	
CV,%	3.5	2.9	5.9	5.2	11.89	8.74	8.44	10.99	13.87	16.50	6.80	7.06	
LSD,0.05	4.9	4.1	8.3	6.8	0.38	0.21	0.12	0.11	0.13	0.11	0.44	0.68	

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

Variety	Seedling Vigor <sup>1</sup> Jun 3, 2009	Percent stand		Yield (tons/acre)			
		2009		2009			
		Jun 3	Oct 7	Jul 1	Aug 7	Sep 17	Total
<b>Commercial Varieties—Available for Farm Use</b>							
Emarwan	4.3	96	97	1.32	1.21	0.99	3.52*
Cinnamon Plus	3.8	98	99	1.05	1.38	1.02	3.46*
Quinequeli	3.0	93	95	1.11	1.17	0.96	3.25*
Kenland (certified)	3.1	91	99	0.83	1.22	1.00	3.04*
Freedom!	4.0	94	96	1.03	0.76	0.95	2.74*
Wildcat	3.0	94	98	0.86	1.04	0.79	2.69*
Juliet	4.3	99	92	0.99	0.96	0.72	2.67*
Common O	3.1	94	79	0.55	0.77	0.55	1.88
<b>Experimental Varieties</b>							
RC9703	4.3	98	99	1.34	1.29	0.96	3.59*
GA-9908	3.8	94	94	1.30	1.14	0.87	3.31*
GA-100RC	4.4	96	96	1.19	1.28	0.82	3.30*
B-8.1500	3.5	94	98	1.01	1.16	0.87	3.04*
Low Phenolic	3.1	91	98	0.83	1.06	0.78	2.67*
KY Tetraploid	3.5	89	99	0.81	0.78	1.00	2.60*
Mean	3.6	94.2	95.5	1.02	1.09	0.88	2.98
CV,%	19.5	4.7	5.0	46.07	31.33	27.39	28.20
LSD,0.05	1.0	6.3	6.8	0.67	0.49	0.34	1.20

<sup>1</sup> Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.  
\* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

**Table 10. Dry matter yields, seedling vigor and stand persistence of red clover varieties sown April 17, 2009 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> May 12, 2009	Percent Stand		Yield (tons/acre)			
		2009		2009			
		May 12	Oct 28	Jul 14	Aug 22	Sep 29	Total
<b>Commercial Varieties-Available for Farm Use</b>							
Freedom!	3.5	100	98	0.62	0.83	0.37	1.83*
Freedom! MR	3.0	98	100	0.45	0.77	0.42	1.64*
Cinnamon Plus	4.3	98	100	0.55	0.71	0.36	1.62*
Wildcat	3.3	99	97	0.48	0.77	0.37	1.61*
Emarwan	3.5	99	98	0.52	0.75	0.32	1.58*
Kenland (certified)	3.0	95	100	0.43	0.76	0.36	1.54*
Kenway	4.0	100	98	0.38	0.64	0.36	1.37
Juliet	4.0	99	85	0.45	0.62	0.30	1.37
Common O	3.8	100	88	0.41	0.54	0.27	1.22
Quinequeli	2.0	91	88	0.41	0.57	0.18	1.16
Kenton	3.3	100	99	0.27	0.50	0.33	1.11
<b>Experimental Varieties</b>							
RC9703	4.5	100	100	0.65	0.95	0.40	2.00*
GA-100RC	4.3	99	100	0.63	0.88	0.35	1.87*
GA-9908	3.8	100	96	0.59	0.80	0.36	1.75*
KY Tetraploid	3.8	98	100	0.52	0.70	0.36	1.58*
B-8.1500	4.0	100	97	0.55	0.72	0.25	1.52*
Mean	3.6	98.4	96.2	0.49	0.72	0.34	1.55
CV,%	22.9	2.2	10.6	28.51	21.96	27.98	22.62
LSD,0.05	1.2	3.0	14.6	0.20	0.22	0.13	0.50

<sup>1</sup> 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 8, 2008 at Lexington, Kentucky.**

Variety	Percent Stand				Yield (tons/acre)							2-year Total
	2008		2009		2008	2009				Total		
	Oct 21	Apr 13	May22	Oct 9	Total	May 22	Jun 15	Jul 16	Aug 10	Sep 18		
<b>Commercial Varieties—Available for Farm Use</b>												
Will	71	74	93	94	0.51	0.41	0.55	0.60	0.63	0.51	2.70	3.21*
Patriot	76	70	80	75	0.50	0.30	0.38	0.50	0.56	0.40	2.15	2.65
RegalGraze	64	53	53	74	0.48	0.15	0.32	0.52	0.59	0.46	2.05	2.53
Regal	53	30	24	56	0.46	0.07	0.20	0.43	0.63	0.49	1.81	2.27
Kopu II	60	34	35	75	0.39	0.06	0.16	0.45	0.57	0.49	1.73	2.13
Rampart	63	51	41	55	0.46	0.13	0.16	0.39	0.45	0.32	1.45	1.91
Durana	80	78	60	70	0.42	0.17	0.14	0.28	0.41	0.37	1.36	1.79
Companion	81	48	33	63	0.49	0.04	0.08	0.26	0.41	0.40	1.19	1.68
<b>Experimental Varieties</b>												
GO-ABAR	83	83	91	97	0.74	0.54	0.60	0.65	0.77	0.58	3.14	3.88*
CW204	70	68	79	91	0.52	0.48	0.53	0.61	0.60	0.47	2.70	3.22*
KY Select	88	90	96	96	0.57	0.48	0.48	0.54	0.53	0.42	2.45	3.02
GO-7SG	88	63	56	84	0.63	0.21	0.21	0.56	0.70	0.55	2.23	2.86
GO-AJ	63	70	65	86	0.53	0.25	0.27	0.45	0.50	0.42	1.90	2.42
CW0401	79	40	38	60	0.75	0.11	0.23	0.34	0.50	0.47	1.66	2.41
GO-ABC	73	73	75	94	0.41	0.27	0.28	0.51	0.55	0.36	1.98	2.39
B-7.1749	49	53	68	81	0.33	0.24	0.28	0.48	0.51	0.43	1.94	2.27
GO-HSM	84	73	68	85	0.45	0.11	0.19	0.40	0.54	0.39	1.63	2.08
GO-BSG	86	23	10	55	0.62	0.01	0.02	0.26	0.47	0.35	1.10	1.73
B-7.1499	71	40	34	40	0.54	0.10	0.10	0.28	0.30	0.23	1.02	1.56
AGRTRxA104	30	11	9	13	0.14	0.01	0.02	0.08	0.28	0.24	0.63	0.77
AGRTRxA103	19	23	16	8	0.16	0.02	0.02	0.11	0.24	0.22	0.61	0.77
Mean	68.8	53.4	51.5	65.9	0.47	0.19	0.24	0.41	0.51	0.41	1.76	2.23
CV,%	23.8	25.4	33.1	20.5	36.28	66.38	44.53	38.74	29.91	25.21	27.99	26.49
LSD,0.05	23.2	19.2	24.1	19.1	0.24	0.18	0.15	0.22	0.22	0.15	0.70	0.84

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

**Table 12. Dry matter yields, seedling vigor and stand persistence of white clover varieties sown April 2, 2009 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Jun 3, 2009	Percent Stand		Yield (tons/acre)			
		2009		2009			
		Jun 3	Oct 7	Jul 1	Aug 7	Sep 18	Total
<b>Commercial Varieties—Available for Farm Use</b>							
Regal	4.8	98	100	0.64	0.73	0.89	2.27*
RegalGraze	4.3	98	100	0.52	0.59	0.69	1.80*
Kopu II	3.5	95	100	0.47	0.65	0.67	1.79*
Will	3.3	98	100	0.46	0.63	0.67	1.76*
Patriot	3.5	97	100	0.46	0.60	0.67	1.72*
Rampart	2.8	96	99	0.34	0.56	0.71	1.61
Companion	3.3	96	98	0.43	0.48	0.56	1.47
Durana	2.1	94	94	0.25	0.47	0.56	1.28
<b>Experimental Varieties</b>							
CW0401	5.0	99	100	0.78	0.71	0.84	2.33*
CW204	4.1	98	99	0.63	0.78	0.92	2.33*
GO-7SG	3.8	96	100	0.52	0.68	0.93	2.12*
CW040041	3.5	94	97	0.56	0.66	0.75	1.98*
B-8.1485	2.5	89	94	0.38	0.69	0.66	1.72*
KYSelect	2.4	93	95	0.40	0.63	0.69	1.72*
GO-ABAR	3.3	95	100	0.41	0.62	0.63	1.67
GO-HSM	2.8	97	98	0.41	0.55	0.60	1.56
B-7.1499	2.8	93	91	0.39	0.50	0.61	1.50
GO-BSG	3.1	95	97	0.38	0.51	0.61	1.50
GO-ABC	3.3	96	98	0.35	0.55	0.56	1.46
GO-AJ	3.0	96	97	0.35	0.45	0.54	1.34
B-7.1749	1.5	80	90	0.23	0.48	0.52	1.23
AGRTRxA103	1.0	58	63	0.19	0.37	0.64	1.20
KYSelect2	2.1	95	85	0.28	0.46	0.45	1.18
AGRTRxA104	1.3	71	71	0.21	0.34	0.56	1.12
Mean	3.0	92.3	94.2	0.42	0.57	0.66	1.65
CV,%	21.9	6.7	6.2	47.08	19.76	31.44	27.76
LSD,0.05	0.9	8.7	8.3	0.28	0.16	0.29	0.65
<sup>1</sup> 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 13. Performance of red clover varieties across years and locations.**

Variety	Proprietor/KY Distributor	Lexington			Eden Shale		Princeton			Quicksand	
		2008 <sup>1</sup>		2009	2008		2008		2009	2008	
		08 <sup>2</sup>	09	09	08	09	08	09	09	08	09
<b>Commercial Varieties—Available for Farm Use</b>											
Cinnamon Plus	FFR/Southern States	*	x <sup>3</sup>	*	*	*	*	*	*	*	*
Common C	Public	x	x								
Common O	Public	*	x	x			*	x	x	*	x
Dominion	Seed Research of Oregon				x	*	*	*			
Emarwan	Rose-AgriSeed			*					*		
Freedom!	Barenbrug	*	x	*	x	x	*	*	*	*	*
Juliet	Caudill Seed Company			*	*	x	*	*	x		
Kenland, certified	KY Agric. Exp. Station	x	x	*	x	*	*	*	*	*	*
Kenland, uncertified	Public				x	x	x	x			
Kenton (KNARS)	KY Agr. Exp. Station	*	*				*	*	x	*	*
Kenway (KVMRS)	KY Agr. Exp. Station	*	*				*	*	x	*	*
Morning Star	Cal/West Seeds				x	x	*	x			
Plus II	Allied Seed, L.L.C.	x	*							*	*
Quinequeli	Caudill Seed Company			*					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	x							*	*
Starfire II	Cal/West & Ampac Seed	x	x		*	*	*	*		*	*
Wildcat	Brett Young Seeds			*					*		
<b>Experimental Varieties</b>											
B8.0083	Blue Moon Farms	x	x							*	*
B-8.1500	Blue Moon Farms			*					*		
CW 040040	Cal/West Seeds	x	x							*	*
CW 202	Cal/West Seeds	*	*							*	*
Freedom! MR	KY Agr. Exp. Station	x	*						*		
GA100-RC	Univ. of Georgia			*					*		
GA-9908	Univ. of Georgia			*					*		
GAC1RC	AgResearch,USA	x	x								
GO-ABR	Grasslands Oregon	x	x							x	x
KY Low phenolic	KY Agr. Exp. Station			*							
KY Tetraploid	KY Agr. Exp. Station	x	*	*	*	*	*	*	*	*	*
PG 606	AgResearch,USA	x	x								
RC 005	FFR/Southern States				*	*	*	x			
RC 006	FFR/Southern States				x	*	*	x			
RC 0501	FFR/Southern States	x	*							*	*
RC 0601	FFR/Southern States	x	x							*	*
RC 9703	Lewis Seed			*					*		

<sup>1</sup> Establishment year

<sup>2</sup> Harvest year

<sup>3</sup> 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.



<b>Table 14. Performance of white clover varieties across years.</b>					
<b>Variety</b>	<b>Type</b>	<b>Proprietor/KY Distributor</b>	<b>Lexington</b>		
			<b>2008<sup>1</sup></b>		<b>2009</b>
			<b>08<sup>2</sup></b>	<b>09</b>	<b>09</b>
<b>Commercial Varieties—Available for Farm Use</b>					
Companion	Ladino	Oregro Seeds, Inc.	x <sup>3</sup>	x	x
Durana	Intermediate	Pennington	x	x	x
Kopu II	Intermediate	Ampac Seed Co	x	x	*
Patriot	Intermediate	Pennington	x	x	*
Rampart	Ladino	Allied Seed, L.L.C.	x	x	x
Regal	Ladino	Public	x	x	*
RegalGraze	Ladino	Cal/West Seeds	x	x	*
Will	Ladino	Allied Seed, L.L.C.	x	*	*
<b>Experimental Varieties</b>					
B-8.1485	Intermediate	Blue MoonFarms			*
B-7.1499	–	Blue MoonFarms	*	x	x
B-7.1749	–	Blue MoonFarms	x	x	x
CW 040041	Ladino	Cal/West Seeds			*
CW 0401	Ladino	Cal/West Seeds	*	x	*
CW 204	Ladino	Cal/West Seeds	*	*	*
GO-ABAR	Ladino	Grasslands Oregon	*	*	x
GO-ABC	Intermediate	Grasslands Oregon	x	x	x
GO-AJ	Intermediate	Grasslands Oregon	*	x	x
GO-BSG	Intermediate	Grasslands Oregon	*	x	x
GO-HSM	Intermediate	Grasslands Oregon	x	x	x
GO-7SG	Ladino	Grasslands Oregon	*	x	*
KY Select	Intermediate	KY Agr. Exp. Station	*	*	*
<sup>1</sup> Establishment year <sup>2</sup> Harvest year <sup>3</sup> 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 16. Summary of Kentucky White Clover Yield Trials 1998-2009 (yield shown as a percentage of the mean of the commercial varieties in the trial.**

Variety	Type	Proprietor	Lexington						Princeton		Quicksand		Eden Shale		
			02 <sup>1,2</sup>	03	04	06	07	08	03	05	98	03	03	Mean <sup>3</sup> (#trials)	
			3yr <sup>4</sup>	3yr	3yr	2yr	2yr	2yr	3yr	3yr	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)
Companion	Ladino	Oregro Seeds						74							
Crescendo	Ladino	Cal/West Seeds	105			140			109						118(3)
Excel	Ladino	Allied Seed, L.L.C.			100										-
Durana	Intermediate	Pennington		94		94	88	79	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	94							96(3)
Patriot	Intermediate	Pennington		103		87	104	117	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	84							-
Regal	Ladino	Public	99	96	92		125	100	107	100	100	104			103(8)
RegalGraze	Ladino	Cal/West Seeds				127	140	111							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	141		136					139(4)

<sup>1</sup> Year trial was established.

<sup>2</sup> 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](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data.



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