PR-628

2011 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 2.5 to 3 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, 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. Information on the grazing tolerance of white clover varieties can be found in the *2010 Red and White Clover Grazing Tolerance Report* (PR-616).

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 14 and 15 show a summary of all clover varieties tested in Kentucky for the past 10-plus 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 2.5 to 3 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 has 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

Table 1. Temperature and rainfall at Lexington, Kentucky in 2010 and 2011.

	2010				2011[2]			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP
JAN	29	-2	2.40	-0.46	29	-2	2.10	-0.76
FEB	29	-6	1.38	-1.83	39	+4	6.34	+3.13
MAR	47	+3	1.05	-3.35	47	+3	4.76	+0.36
APR	59	+4	2.74	-1.14	58	+3	12.36	+8.48
MAY	67	+3	7.84	+3.37	64	0	6.72	+2.25
JUN	76	+4	4.61	+0.95	74	+2	2.61	-1.05
JUL	78	+2	5.49	+0.49	80	+4	6.29	1.29
AUG	78	+3	1.54	-2.39	75	0	2.89	-1.04
SEP	71	+3	1.14	-2.06	66	-2	5.52	+2.32
OCT	59	+2	1.22	-1.35	55	-2	4.10	+1.53
NOV	47	+2	4.58	+1.19				
DEC	28	-8	2.15	-1.93				
Total			36.14	-8.41			53.69	+16.51

[1] DEP is departure from the long-term average.
[2] 2011 data is for the ten months through October

Table 2. Temperature and rainfall at Princeton, Kentucky in 2010 and 2011.

	2010				2011[2]			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP
JAN	31	-3	3.06	-0.74	32	-2	2.35	-1.45
FEB	33	-5	1.54	-2.89	40	+2	5.71	+1.28
MAR	48	+1	3.24	-1.70	50	+3	5.54	+0.60
APR	62	3	3.3	-1.54	61	+2	16.15	+11.35
MAY	69	+2	10.41	+5.45	66	-1	7.22	+2.26
JUN	79	4	4.82	0.97	77	+2	4.60	+0.75
JUL	80	2	2.73	-1.56	81	+3	2.98	-1.31
AUG	81	4	2.46	-1.55	77	0	3.95	-0.06
SEP	72	1	0.94	-2.39	68	-3	3.86	+0.53
OCT	60	+1	0.97	-2.08	57	-2	1.35	-1.70
NOV	49	+2	3.98	-1.65				
DEC	32	-7	1.57	-3.47				
Total			39.02	-12.11			53.71	+12.25

[1] DEP is departure from the long-term average.
[2] 2011 data is for the ten months through October

Table 3. Temperature and rainfall at Quicksand, Kentucky in 2010 and 2011.

	2010				2011[2]			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP
JAN	31	0	4.09	+0.80	32	+1	2.63	-0.66
FEB	32	-1	2.82	-0.77	42	+9	3.94	+0.34
MAR	47	+6	2.38	-1.96	48	+7	4.66	+0.32
APR	60	+7	2.64	-1.46	60	+7	11.65	+7.55
MAY	67	+5	6.00	+1.52	65	+3	6.49	+2.01
JUN	76	+6	4.26	+0.44	73	+3	3.73	-0.09
JUL	77	+3	3.06	-2.19	78	+4	4.92	-0.33
AUG	77	+4	3.77	-0.24	75	+2	4.09	+0.08
SEP	69	+3	0.63	-2.89	67	+1	3.52	0
OCT	57	+3	1.33	-1.58	55	+1	4.16	+1.25
NOV	47	+5	3.88	0				
DEC	29	-4	3.15	-0.99				
Total			38.02	-9.32			49.79	+10.47

[1] DEP is departure from the long-term average.
[2] 2011 data is for the ten months through October.

Table 4. Temperature and rainfall at Eden Shale, Kentucky in 2010 and 2011.

	2010				2011[2]			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP
JAN	28	-2	2.38	-0.16	28	-2	1.68	-0.86
FEB	29	-4	1.78	-0.97	38	+5	5.32	+2.57
MAR	47	+4	2.92	-1.80	46	+3	3.47	-1.25
APR	59	+5	2.65	-1.50	58	+4	12.92	+8.77
MAY	66	+3	6.83	+2.43	63	0	6.96	+2.55
JUN	76	+5	7.64	+3.87	72	+1	5.91	+2.14
JUL	77	+2	3.00	-1.53	79	+4	2.22	--2.31
AUG	77	+3	0.78	-2.95	75	+1	2.61	-1.12
SEP	71	+3	0.21	-2.98	65	-3	5.5	+2.31
OCT	59	+2	1.18	-1.81	55	-2	3.61	+0.62
NOV	46	+1	3.80	+0.25				
DEC	27	-8	1.97	+0.46				
Total			35.14	-8.62			50.2	+13.42

[1] DEP is departure from the long-term average.
[2] 2011 data is for the ten months through October.

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 percentage 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 2010 and two in 2011), Princeton (2011), Quicksand (2010), and Eden Shale (2010). 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 of seed 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 11. Yields are given by cutting date for 2011 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.

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, and 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 12 and 13 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 12 and 13, 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 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 11. Make sure seed of the variety selected is properly labeled and will be available when needed.

Tables 14 and 15 are summaries of yield data from 1998 to 2011 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 14 and 15, 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 14 and 15 to determine which yearly report to refer to.

Table 5. Dry matter yields and stand persistence of red clover varieties sown April 6, 2010 at Lexington, Kentucky.

	Percent Stand				Yield (tons/acre)						
	2010		2011			2011					
Variety	Aug 8	Oct 15	Mar 22	Oct 4	2010 Total	May 11	Jun 10	Jul 11	Aug 15	Total	2-year Total
Commercial Varieties-Available for Farm Use											
Starfire II	98	96	92	67	0.99	1.25	0.49	0.47	0.28	2.62	3.82*
Cinnamon Plus	92	84	93	88	0.83	1.29	0.47	0.49	0.31	2.73	3.81*
Freedom!	94	88	96	75	0.97	1.23	0.56	0.33	0.27	2.56	3.80*
Freedom! MR	96	97	95	83	0.92	1.23	0.51	0.43	0.35	2.67	3.75*
Common O	95	92	88	68	0.71	1.18	0.56	0.26	0.24	2.44	3.27*
Kenland (certified)	88	78	90	78	0.66	1.14	0.51	0.40	0.30	2.46	3.26*
Rustler	92	92	93	52	0.68	0.96	0.50	0.33	0.31	2.16	2.89*
GLB09	93	92	89	50	0.62	1.19	0.55	0.17	0.18	2.14	2.87*
Kenland (uncertified)	69	45	68	42	0.52	0.95	0.60	0.26	0.19	2.15	2.77*
Experimental Varieites											
KY Tetraploid	95	94	98	87	0.78	1.45	0.60	0.58	0.34	3.18	4.10*
CW 30091	97	94	98	73	0.81	1.59	0.48	0.41	0.28	2.88	3.88*
B-9.2013	94	93	87	75	0.94	1.17	0.55	0.51	0.37	2.68	3.63*
CW 202	88	77	97	77	0.84	1.11	0.50	0.42	0.36	2.48	3.47*
AMP-116	98	94	82	70	0.94	1.01	0.54	0.29	0.28	2.30	3.22*
Mean	92.0	86.7	90.4	70.4	0.80	1.20	0.53	0.38	0.29	2.53	3.47
CV,%	7.8	17.5	10.7	28.3	56.59	28.84	17.32	24.38	32.97	19.21	26.93
LSD,0.05	10.3	21.7	16.3	33.4	0.65	0.58	0.13	0.13	0.14	0.82	2.57

* 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 7, 2010 at Quicksand, Kentucky.

	Percent Stand				Yield (tons/acre)						
	2010	2011				2011					
Variety	Oct 10	Mar 29	Nov 8		2010 Total	May 11	Jun 23	Jul 22	Sep 27	Total	2-year Total
Commercial Varieties-Available for Farm Use											
Freedom! MR	98	99	65		1.44	1.62	1.18	0.79	0.40	3.99	5.43
Freedom!	99	100	64		1.31	1.52	1.37	0.68	0.32	3.90	5.21
Starfire II	99	99	65		1.52	1.42	1.23	0.62	0.25	3.52	5.05
Kenland (certified)	95	95	55		1.28	1.24	1.35	0.68	0.34	3.61	4.89
Cinnamon Plus	95	95	49		1.40	1.50	1.19	0.57	0.18	3.44	4.84
Wildcat	99	98	23		1.26	1.65	1.18	0.42	0.13	3.38	4.64
Rustler	98	99	35		1.38	1.50	1.18	0.49	0.08	3.24	4.62
Emarwan	98	99	43		1.17	1.01	1.15	0.62	0.20	2.97	4.15
Kenland (uncertified)	83	86	8		0.81	1.56	1.13	0.24	0.04	2.97	3.77
GLB09	82	82	7		0.82	1.49	1.03	0.12	0.03	2.67	3.49
Common O	86	86	9		0.91	1.06	1.01	0.17	0.03	2.26	3.17
Experimental Varieties											
KY Tetraploid	99	100	90		1.54	1.70	1.63	0.85	0.79	4.98	6.52*
CW 202	89	96	43		1.08	1.46	1.24	0.49	0.18	3.37	4.44
CW 30091	100	99	41		1.15	0.97	1.35	0.49	0.17	2.98	4.13
B-9.2013	96	98	29		1.08	1.39	1.08	0.36	0.06	2.88	3.96
AMP-116	100	100	16		1.16	1.10	0.92	0.35	0.04	2.41	3.57
Mean	94.6	95.5	40.0		1.21	1.39	1.20	0.50	0.20	3.29	4.49
CV,%	7.9	7.1	37.6		21.00	31.43	13.16	22.27	68.79	16.10	13.65
LSD,0.05	10.6	9.6	21.5		0.36	0.62	0.23	0.16	0.20	0.75	0.87

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

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 at local county Extension offices and are listed in the "Publications" section of the UK Forage web site,www.uky.edu/Ag/Forage:

- *Lime and Fertilizer Recommendations* (AGR-1)
- *Producing Red Clover Seed in Kentucky* (AGR-2)
- *Grain and Forage Crop Guide for Kentucky* (AGR-18)
- *Renovating Hay and Pasture Fields* (AGR-26)
- *Growing Red Clover in Kentucky* (AGR-33)

Table 7. Dry matter yields, seedling vigor and stand persistence of red clover varieties sown April 15, 2010 at the Eden Shale Farm near Owenton, Kentucky.

Variety	Seedling Vigor[1] May 20, 2010	Percent Stand 2010 May 20	Percent Stand 2010 Oct 14	Percent Stand 2011 Mar 22	Percent Stand 2011 Sep 21	Yield (tons/acre) 2010 Total	Yield (tons/acre) 2011 May 11	Yield (tons/acre) 2011 Jun 13	Yield (tons/acre) 2011 Jul 14	Yield (tons/acre) 2011 Aug 17	Yield (tons/acre) 2011 Total	2-year Total
Commercial Varieties-Available for Farm Use												
Kenland(certified)	2.3	91	93	92	85	1.02	0.45	1.35	0.93	0.38	3.11	4.13*
Freedom!	3.5	95	87	91	86	0.95	0.48	1.30	0.98	0.37	3.13	4.07*
Cinnamon Plus	3.4	91	97	93	91	0.83	0.46	1.05	0.96	0.34	2.80	3.63*
Freedom! MR	3.3	90	91	89	89	1.00	0.27	0.98	0.95	0.37	2.56	3.56*
Starfire II	2.9	94	90	78	75	0.80	0.27	1.04	1.03	0.27	2.59	3.40*
Rustler	2.8	87	88	74	58	0.96	0.22	0.99	0.70	0.41	2.32	3.28*
Kenland (uncertified)	1.6	71	68	76	45	0.86	0.34	1.06	0.72	0.20	2.31	3.18*
GLB09	4.1	98	93	87	36	0.66	0.22	1.23	0.58	0.09	2.11	2.77
Common O	3.4	93	88	80	48	0.65	0.33	1.02	0.54	0.14	2.02	2.68
Juliet	3.4	97	90	94	44	0.57	0.26	0.95	0.43	0.08	1.72	2.29
Quinequeli	3.0	97	89	55	31	0.86	0.05	0.62	0.44	0.07	1.18	2.03
Experimental Varieties												
KY Tetraploid	4.6	97	95	95	93	0.90	0.35	1.19	1.05	0.28	2.87	3.78*
CW 202	2.5	92	89	87	84	0.73	0.36	1.46	0.88	0.33	3.02	3.75*
B-9.2013	3.3	95	93	89	79	0.74	0.43	1.16	0.89	0.33	2.81	3.55*
CW 30091	3.8	95	93	80	73	0.91	0.25	1.09	0.82	0.37	2.52	3.43*
AMP-116	3.6	96	89	48	25	0.75	0.15	0.48	0.26	0.11	1.00	1.75
Mean	3.2	92.3	89.5	81.5	65.0	0.82	0.31	1.06	0.76	0.26	2.38	3.21
CV,%	31.0	7.2	7.0	19.6	35.8	25.78	66.02	32.45	35.34	63.09	34.13	28.40
LSD,0.05	1.4	9.4	8.9	22.8	33.1	0.30	0.29	0.49	0.38	0.23	1.16	1.30

[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.

- *Establishing Forage Crops* (AGR-64)
- *Inoculation of Forage Legumes* (AGR-90)
- *Growing White Clover in Kentucky* (AGR-93)
- *Weed Control Strategies for Alfalfa and Other Forage Legume Crops* (AGR-148)
- *Insect Management Recommendations for Field Crops and Livestock* (ENT-17)
- *Kentucky Plant Disease Management Guide for Forage Legumes* (PPA-10D)
- *"Emergency" Inoculation for Poorly Nodulated Legumes* (PPFS-AG-F-04)

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Table 8. Dry matter yields and stand persistence of red clover varieties sown April 7, 2011 at Lexington, Kentucky.

Variety	Percent Stand 2011 Jul 18	Percent Stand 2011 Oct 4	Yield (tons/acre) 2011 Jul 18	Yield (tons/acre) 2011 Aug 15	Yield (tons/acre) 2011 Total
Commercial Varieties-Available for Farm Use					
Freedom!	86	85	0.08	0.58	0.66*
Kenland (certified)	80	84	0.09	0.53	0.62*
Rustler	71	73	0.17	0.43	0.61*
Cinnamon Plus	86	83	0.12	0.40	0.58*
Common O	75	66	0.04	0.40	0.48
Experimental Varieties					
CW 202	92	93	0.24	0.67	0.91*
B-9.2013	73	73	0.23	0.50	0.82*
RC 0303G	76	74	0.15	0.45	0.60*
CW 30091	79	81	0.10	0.44	0.54
Mean	79.8	78.9	0.14	0.49	0.65
CV,%	17.8	20.1	80.65	33.29	34.36
LSD,0.05	20.8	23.1	0.17	0.24	0.35

* 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 7, 2011 at Princeton, Kentucky.

Variety	Percent Stand 2011 Jun 14	Percent Stand 2011 Sep 22	Yield (tons/acre) 2011[1] Jul 21	Yield (tons/acre) 2011[1] Total
Commercial Varieties-Available for Farm Use				
Kenland (certified)	94.0	85.0	0.91	0.91*
Cinnamon Plus	96.5	93.0	0.89	0.89*
GLB09	96.5	85.3	0.87	0.87*
Freedom!	95.3	92.5	0.80	0.80*
Experimental Varieties				
RC 0303G	93.8	94.8	0.99	0.99*
RC 9703	95.0	93.3	0.87	0.87*
GA9908	92.8	81.8	0.81	0.81*
B-8.1500	91.8	83.8	0.80	0.80*
GA110RC	95.8	87.3	0.68	0.68
Mean	94.6	88.5	0.85	0.85
CV,%	4.3	11.4	17.60	17.60
LSD,0.05	5.9	14.7	0.22	0.22

[1] Only one harvest during the 2011 season.
* 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 6, 2010 at Lexington, Kentucky.												
	Percent Stand				Yield (tons/acre)							
	2010		2011		2010	2011						2-year
Variety	Aug 6	Oct 15	Mar 22	Oct 6	Total	May 19	Jun 7	Jul 11	Aug 12	Oct 6	Total	Total
Commercial Varieties-Available for Farm Use												
Regal	99	95	83	88	0.79	0.48	0.75	0.38	0.27	0.11	1.99	2.78*
Will	100	97	91	85	0.95	0.47	0.82	0.26	0.22	0.06	1.82	2.77*
Patroit	99	96	89	90	0.80	0.44	0.80	0.27	0.22	0.12	1.85	2.65*
Common	99	94	76	88	0.71	0.45	0.63	0.20	0.09	0.14	1.51	2.22
Kopu II	100	97	72	84	0.75	0.32	0.69	0.21	0.14	0.08	1.43	2.18
Crusader II	100	96	91	58	0.84	0.55	0.68	0.07	0.02	0.02	1.34	2.18
Ivory 2	98	98	94	93	0.58	0.41	0.73	0.23	0.14	0.07	1.58	2.16
Companion	98	96	75	88	0.70	0.41	0.61	0.14	0.07	0.09	1.32	2.02
Durana	96	97	88	88	0.58	0.35	0.66	0.21	0.09	0.08	1.40	1.98
Rampart	98	93	71	77	0.57	0.37	0.61	0.19	0.10	0.07	1.35	1.92
Ocoee	99	96	76	75	0.72	0.34	0.62	0.14	0.06	0.03	1.19	1.91
Experimental Varieties												
CW 204	98	97	79	80	0.95	0.46	0.80	0.32	0.20	0.09	1.87	2.82*
CW 040041	99	99	83	74	0.82	0.38	0.75	0.20	0.12	0.05	1.50	2.32*
AMP-124	99	92	73	75	0.69	0.48	0.71	0.24	0.09	0.08	1.60	2.29*
RD86	99	99	74	81	0.69	0.39	0.65	0.13	0.08	0.05	1.29	1.99
KY MC	98	97	68	69	0.58	0.27	0.52	0.15	0.12	0.04	1.10	1.68
Mean	98.4	96.0	79.9	80.8	0.73	0.41	0.69	0.21	0.13	0.07	1.51	2.24
CV,%	2.3	3.7	27.4	15.7	31.63	35.61	17.92	36.01	56.56	68.43	19.01	18.25
LSD,0.05	3.2	5.3	31.2	18.1	0.33	0.21	0.18	0.11	0.10	0.07	0.41	0.58
* 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 7, 2011 at Lexington, Kentucky.						
	Percent Stand		Yield (tons/acre)			
	2011		2011			
Variety	Jul 11	Oct 6	Jul 11	Aug 12	Oct 6	Total
Commercial Varieties-Available for Farm Use						
Regal	93	93	0.32	0.56	0.27	1.15*
Jumbo II	94	98	0.26	0.46	0.28	1.00*
Will	91	94	0.23	0.46	0.21	0.90*
Ivory II	80	92	0.13	0.34	0.27	0.74
Ocoee	91	84	0.21	0.33	0.19	0.73
Patriot	91	92	0.15	0.34	0.24	0.73
GWC-AS10	87	89	0.19	0.33	0.21	0.72
Kopu II	85	91	0.18	0.32	0.18	0.68
Crusader II	92	87	0.20	0.26	0.18	0.64
Durana	76	86	0.12	0.22	0.24	0.58
Experimental Varieties						
CW 040041	93	97	0.27	0.49	0.28	1.04*
CW 204	93	95	0.29	0.49	0.18	0.96*
AMP-124	84	88	0.26	0.39	0.22	0.87*
KY Select	88	94	0.22	0.31	0.21	0.74
RD86	86	92	0.15	0.32	0.20	0.67
WBDX	86	86	0.14	0.22	0.18	0.54
NFWC04-29	84	88	0.14	0.24	0.14	0.53
NFWC04-49	65	80	0.07	0.13	0.14	0.33
Mean	86.6	90.2	0.20	0.34	0.21	0.75
CV,%	10.8	8.5	59.53	32.74	51.18	37.28
LSD,0.05	13.3	10.9	0.17	0.16	0.15	0.40
* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.						

Table 12. Performance of red clover varieties across years and locations.

Variety	Proprietor/KY Distributor	Lexington			Eden Shale		Princeton	Quicksand	
		2010[1]		2011	2010		2011	2010	
		10[2]	11	11	10	11	11	10	11
Commercial Varieties-Available for Farm Use									
Cinnamon Plus	FFR/Southern States	*	*	*	*	*	*	*	x[3]
Common O	Public	*	*	x	x	*		x	x
Emarwan	Rose-AgriSeed							x	x
Freedom!	Barenbrug USA	*	*	*	*	*	*	*	x
Freedom! MR	Barenbrug USA	*	*		*	*		*	x
Juliet	Caudill Seed Company				x	x			
GLB09	Public	*	x		x	*	*	x	x
Kenland (certified)	KY Agric. Exp. Station	*	*	*	*	*	*	*	x
Kenland (uncertified)	Public	*	x		*	*		x	x
Quinequeli	Caudill Seed Company				*	x			
Rustler	Oregro Seeds	*	x	*	*	*		*	x
Starfire II	Cal/West & Ampac Seed	*	*		*	*		*	x
Wildcat	Brett Young Seeds							*	x
Experimental Varieties									
AMP-116	Ampac Seed	*	x		*	x		x	x
B-8.1500	Blue Moon Farms						*		
B-9.2013	Blue Moon Farms	*	*	*	*	*		x	x
CW 202	Cal/West Seeds	*	*	*	*	*		x	x
CW 30091	Cal/West Seeds	*	*	x	*	*		x	x
GA110RC	Univ of GA						x		
GA9908	Univ of GA						*		
KY Tetraploid	KY Agr. Exp. Station	*	*		*	*		*	*
RC 0303G	FFR/Southern States			*			*		
RC 9703	Lewis Seed						*		

[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 13. Performance of white clover varieties across years.

Variety	Type	Proprietor/ KY Distributor	Lexington		
			2010[1]		2011
			10[2]	11	11
Commercial Varieties-Available for Farm Use					
Companion	Ladino	Oregro Seeds, Inc.	*	x[3]	
Crusader II	Intermediate	Allied Seed, L.L.C.	*	x	x
Durana	Intermediate	Pennington	x	x	x
GWC-AS10	–	Ampac Seed Co			x
Ivory 2	Medium leaved	DLF International	x	*	x
Jumbo II	–	Ampac Seed Co			*
Kopu II	Intermediate	Ampac Seed Co	*	x	x
Ocoee	Ladino	Allied Seed, L.L.C.	*	x	x
Patriot	Intermediate	Pennington	*	*	x
Rampart	Ladino	Allied Seed, L.L.C.	x	x	
Regal	Ladino	Public	*	*	*
Will	Ladino	Allied Seed, L.L.C.	*	*	*
Experimental Varieties					
AMP-124	Intermediate	Ampac Seed Co	*	*	*
CW 040041	Ladino	Cal/West Seeds	*	x	*
CW 204	Ladino	Cal/West Seeds	*	*	*
KY Select	Intermediate	KY Agr. Exp. Station	x	x	x
NFWC04-29	Intermediate	Noble Foundation			x
NFWC04-49	Intermediate	Noble Foundation			x
RD86	Ladino	Allied Seed, L.L.C.	*	x	x
WBDX	–	Saddlebutte			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 14. Summary of Kentucky Red Clover Yield Trials 2000-2011 (yield shown as a percentage of the mean of the named commercial varieties in the trial).

		Lexington										Princeton					Quicksand					Eden Shale				
		00[1,2]	00	01	02	03	04	06	08	09	10	00	03	05	08	09	01	03	05	08	10	00	03	08	10	Mean[3]
Variety	Proprietor	3yr[4]	3yr	3yr	3yr	3yr	3yr	2yr	3yr	2yr	2yr	3yr	3yr	2yr	3yr	2yr	2yr	2yr	3yr	3yr	2yr	3yr	2yr	3yr	2yr	(#trials)
AA117ER	ABI Alfalfa							110						87					92							96(3)
Acclaim	Allied Seed				92																					–
Arlington	WI Agr. Exp.Sta.				72																					–
Belle	Agribiotech	88			82																					85(2)
Cherokee	FL Agr. Exp. Sta.	78			65																					72(2)
Cinnamon	FFR/Sou.St.	111			108																					110(2)
Cinnamon Plus	FFR/Sou.St.					97		109	112	123	113			112	102	102			103	108	108			108	114	109(13)
Common O	Public										97										71				84	84(3)
Dominion	Seed Research of OR							102						95	102				93					109		100(5)
Duration	Cisco Co.			86	100												106									97(3)
Emarwan	Turf-Seed						91			117						106	101				93					102(5)
Freedom!	Barenbrug USA	108	105	127	123	96	118	91	100	108	113	105	110	136	107	116	111	103	119	106	116	102	102	100	128	110(24)
Freedom!MR	Barenbrug USA				118	115	102	114	114		112		106	101		108		94	111		122		118		112	111(14)
FSG 9601	Allied Seed						89																			–
Impact	Specialty Seeds	106	97									98														100(3)
Juliet	Caudill Seed									84					93	90								84	72	85(5)
Kenland (cert.)	KY Ag.Exp Sta.	110	111	127	139	118	117	117	99	111	97	104	102	92	113	106	111	88	105	104	109	104	98	110	130	109(24)
Kenland (uncert)	Public										82				74		83				84			66	100	82(6)
Kenstar	KY Ag.Exp Sta.		105									104														105(2)
Kenton	KY Ag.Exp Sta.	100	93	119	109	90	95	112	121			98	95	105	112	94	93	99	106	98		102	98			102(19)
Kenway	KY Ag.Exp Sta.	106	104	111	134		97	119	118			100		94	106	103	100		103	94		102				106(15)
Morning Star	Cal/West Seeds														90									90		90(2)
Plus	Allied Seed	113			113																	97				108(3)
Plus II	Allied Seed								130											97						114(2)
Prima	Public	92			74																					83(2)
Quinequeli	Caudill Seed									92						80									64	79(3)
Red Gold	Proseeds Marketing							81							89									102		91(3)
Red Gold Plus	Turner Seed		97	97			95					95					98					98				97(6)
RedlanGraze	ABI Alfalfa	95																								–
RedlanGraze II	Americas Alfalfa			91	104												93									96(3)
Redland Max	ABI Alfalfa						95																			–
Redstart	Syngenta	102			78																					90(2)
Robust	Scott Seed	92																								–
Robust II	Seed Research of OR														110									108		109(2)
Rocket	Seed Research of OR														106									108		107(2)
Rojo Diablo	Great Plains			99													101									100(2)
Royal Red	FFR/Sou.St.	108	92		91																	96				97(4)
Rustler	Oregro Seeds								83		86									94	103				103	94(4)
Scarlet	Dairyland	95																								–
Sienna	Great Plains			91													106									99(2)
Solid	Production Service	97	102		98	84		79				98	87	86					76			105	84			91(11)
Starfire	Ampac Seed	97	93		99							98										95				96(5)
Starfire II	Cal/West & Ampac								101		114				112					110	113			115	107	110(7)
Triple Trust 350	ABI Alfalfa							101						92					92							95(3)
Vesna	DLF-Jenks			53													96									75(2)
Wildcat	Brett Young Seeds									101						107					104					104(3)

[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 15. Summary of Kentucky White Clover Yield Trials 1998-2011 (yield shown as a percentage of the mean of the commercial varieties in the trial.)

			Lexington								Princeton		Quicksand		Eden Shale	
			02[1,2]	03	04	06	07	08	09	10	03	05	98	03	03	Mean[3]
Variety	Type	Proprietor	3yr[4]	3yr	3-yr	2-yr	2-yr	3yr	2yr	2yr	3yr	3-yr	3yr	2yr	2yr	(#trials)
Advantage	Ladino	Allied Seed, L.L.C.		125											106	116(2)
Alice	Intermediate	Barenbrug USA										86				–
Avoca	Dutch	DLF International Seeds				59						82				71(2)
Barblanca	Intermediate	Barenbrug USA		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			99		78				83(4)
Companion	Ladino	Oregro Seeds						87	94	90						90(3)
Crescendo	Ladino	Cal/West Seeds	105			140						109				118(3)
Crusader II	Intermediate	Allied Seed, L.L.C.								97						–
Excel	Ladino	Allied Seed, L.L.C.			100											–
Durana	Intermediate	Pennington		94		94	88	82	85	88	87	83		101	95	90(10)
Insight	Ladino	Allied Seed, L.L.C.				128										–
Ivory	Intermediate	Cebeco	96													–
Ivory II	Intermediate	DLF International Seeds					86			96						91(2)
Jumbo	Ladino	Ampac Seed	93													–
Kopu II	Intermediate	Ampac Seed	97			97	95	95	103	97						97(6)
Ocoee	Ladino	Allied Seed, L.L.C.								85						–
Patriot	Intermediate	Pennington		103		87	104	113	95	118	104	100		98	99	102(10)
Pinnacle	Ladino	Allied Seed, L.L.C.				120						111				116(2)
Rampart	Ladino	Allied Seed, L.L.C.					80	89	97	85						88(4)
Regal	Ladino	Public	99	96	92		125	100	116	123	107	100	100	104		106(11)
RegalGraze	Ladino	Cal/West Seeds				127	140	102	103							118(4)
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	132	107	123		136				131(7)

[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

12-2011