

# 2005 Red and White Clover Report

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## Introduction

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

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

This report provides current yield data on red and white clover varieties included in yield trials in Kentucky as well as guidelines for selecting clover varieties. Go to the UK Forage Extension Web site at [www.uky.edu/AG/FORAGE](http://www.uky.edu/AG/FORAGE) to obtain electronic versions of all forage variety testing reports as well as other forage publications.

## Important Selection Considerations

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

**Seed quality.** Buy high-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 (one in 2003 and two in 2004), Princeton (one in 2003 and two in 2005), Quicksand (sown in 2005) and Eden Shale (sown in 2003). Two other trials (one red clover and one white clover) were planted in Lexington in 2005, but stands did not establish well due to environmental conditions. These two trials will be replanted in the spring of 2006. The soils at Princeton (Crider), Lexington (Maury), and Quicksand (Pope) were well-drained silt loams. Eden Shale has a Nicholson silt loam soil. All are well suited to clover production. Plots were 5 by 15 feet and were arranged in a randomized complete block design with four replications at every location.

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

## Results and Discussion

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

Yield data (on a dry matter basis) are presented in Tables 5 through 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 2005 and by year for each prior year.

Statistical analyses were performed on all clover data (including experimental varieties) to determine if the apparent differences are truly due to variety. Varieties not significantly different from the top variety within a column are marked with one asterisk (\*). To determine if two varieties are truly different, compare the difference between the two varieties with the Least Significant Difference (LSD) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different when grown under the conditions at a given location. The Coefficient of Variation (CV), which is a measure of the variability of the data, is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

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

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

Tables 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 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.

## Summary

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

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

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

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	2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	26	-5	0.96	-1.90	30	-1	3.14	+0.28	37	+6	4.35	+1.49
FEB	32	-3	3.59	+0.38	36	+1	1.32	-1.89	39	+4	1.68	-1.53
MAR	47	+3	2.09	-2.31	47	+3	3.43	-0.97	41	-3	2.79	-1.61
APR	57	+2	3.14	-0.74	55	0	3.06	-0.82	56	+1	3.30	-0.58
MAY	63	-1	6.68	+2.21	68	+4	9.79	+5.32	61	-3	1.78	-2.69
JUN	69	-3	4.85	+1.19	72	0	3.13	-0.53	75	+3	1.33	-2.33
JUL	74	-2	2.68	-2.32	73	-3	7.65	+2.65	77	+1	3.30	-1.70
AUG	75	0	5.26	+1.33	71	-4	2.91	-1.02	78	+3	3.34	-0.59
SEP	65	-3	4.22	+1.02	68	0	2.61	-0.59	72	+4	0.59	-2.21
OCT	56	-1	1.61	-0.96	58	+1	5.65	+3.08	58	+1	0.92	-1.65
NOV	50	+5	4.63	+1.24	49	+4	6.29	+2.90	47	+2	1.54	-1.85
DEC	36	0	3.26	-0.72	36	0	3.20	-0.78				
Total			42.97	-1.58			52.18	+7.63			25.32	-15.25

DEP is departure from the long-term average.

	2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	-3	2.19	-1.61	36	+2	4.12	+0.32	41	+7	5.30	+1.50
FEB	35	-3	7.45	+3.02	39	+1	2.44	-1.99	43	+5	2.30	-2.13
MAR	50	+3	2.46	-2.48	53	+6	4.28	-0.66	47	0	4.11	-0.83
APR	60	+1	6.99	+2.19	59	0	5.32	+0.52	60	+1	4.61	-0.19
MAY	67	0	4.81	-0.15	72	+5	7.34	+2.38	65	-2	1.54	-3.42
JUN	71	-4	5.05	+1.20	74	-1	3.40	-0.45	76	+1	3.09	-0.76
JUL	79	+1	4.75	+0.46	75	-3	4.87	+0.58	79	+1	2.39	-1.90
AUG	79	+2	2.05	-1.96	73	-4	3.02	-0.99	80	+3	11.54	+7.53
SEP	69	-2	6.17	+2.84	71	0	0.20	-3.13	74	+2	2.17	-1.16
OCT	60	+1	3.73	+0.68	64	+5	4.03	+0.98	60	+1	0.19	-2.86
NOV	53	+6	5.85	+1.22	53	+6	6.94	+2.31	50	+3	2.48	-2.15
DEC	40	+1	2.39	-2.65	37	-1	4.29	-0.75				
Total		.	53.89	+2.76			50.25	-0.88			39.72	-6.37

DEP is departure from the long-term average.

	2004				2005			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	30	0	4.3	+1.76	35	+5	5.67	+3.13
FEB	36	+3	1.35	-1.4	39	+6	1.98	-0.77
MAR	48	+5	2.92	-1.8	40	-3	3.78	-0.94
APR	56	+2	4.32	+0.17	56	+2	3.65	-0.50
MAY	69	+6	7.8	+3.39	61	-2	2.09	-2.32
JUN	72	+1	1.66	-2.11	75	+4	1.52	-1.85
JUL	73	-2	3.37	-1.16	78	+3	3.22	-1.21
AUG	71	-3	3.86	+0.13	78	+4	8.59	+4.89
SEP	69	+1	2.14	-1.05	71	+3	1.56	-1.63
OCT	58	+1	6.51	+3.52	58	+1	1.74	-1.25
NOV	49	+4	5.02	+1.47	47	+2	3.61	+0.06
DEC	34	-1	3.38	-0.05				
Total			46.63	+2.87			37.81	-2.52

DEP is departure from the long-term average.

	2005			
	Temperature		Rainfall	
	°F	DEP	IN	DEP
JAN	40	+9	4.45	+1.16
FEB	42	+9	3.01	-0.59
MAR	44	+3	2.86	-1.48
APR	58	+5	6.63	+2.53
MAY	63	+1	2.05	-2.43
JUN	75	+5	2.39	-1.43
JUL	78	+4	2.58	-2.67
AUG	79	+6	3.51	-0.50
SEP	72	+6	0.27	-3.25
OCT	59	+5	0.68	-2.23
NOV	49	+7	1.30	-2.58
DEC				
Total			29.73	-13.47

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

**Table 5. Dry matter yields (tons/acre) and stand rating of red and white clover varieties sown April 4, 2003 at Lexington, Kentucky.**

Variety	2005 Percent Stand		Yield (tons/acre)						
	Apr 8	Jul 25	2003 Total	2004 Total	2005				3-yr Total
					May 23	June 23	Jul 25	Total	
<b>Commercial Varieties—Available for Farm Use</b>									
Certified Kenland	43	29	1.20	5.50	1.18	0.22	0.06	1.46	8.15*
Cinnamon Plus	53	18	0.87	4.98	0.68	0.12	0.02	0.83	6.68
Freedom!	35	25	0.98	4.99	0.46	0.14	0.07	0.67	6.63
Kenton(KNARS)	28	18	0.86	4.87	0.34	0.12	0.04	0.49	6.23
Advantage(white)	48	65	1.18	3.80	0.77	0.16	0.11	1.04	6.02
Solid	9	7	1.04	4.42	0.26	0.07	0.01	0.34	5.80
Patriot(white)	65	60	0.96	3.07	0.67	0.21	0.02	0.90	4.93
Common	0	1	0.95	3.22	0.51	0.01	0.00	0.52	4.70
Regal(white)	28	55	1.03	2.92	0.53	0.06	0.07	0.66	4.61
Durana(white)	60	38	1.03	2.58	0.76	0.12	0.03	0.91	4.52
GDQ	1	1	0.94	3.48	0.02	0.00	0.00	0.03	4.45
Barblanca(white)	73	83	1.01	2.39	0.78	0.17	0.04	1.00	4.40
GDLH	0	0	0.95	3.13	0.30	0.00	0.00	0.31	4.39
Colt(white)	80	50	0.83	2.59	0.77	0.13	0.00	0.91	4.33
GDSG	1	0	0.88	3.31	0.01	0.00	0.00	0.02	4.21
<b>Experimental Varieties</b>									
Freedom!MR	45	30	1.15	5.69	0.77	0.28	0.07	1.13	7.96*
KY Tetraploid	28	26	1.17	5.19	0.58	0.15	0.05	0.77	7.14*
Low Phenolic	30	23	1.08	5.06	0.52	0.07	0.06	0.65	6.79
CW7000(white)	55	78	1.40	3.31	1.15	0.29	0.16	1.60	6.31
Mean	36	32	1.03	3.92	0.58	0.12	0.04	0.75	5.70
CV,%	33	35	18.65	18.26	66.54	69.02	89.66	56.84	15.94
LSD,0.05	17	16	0.27	1.02	0.55	0.12	0.05	0.60	1.29

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

Variety	2005 Percent Stand		Yield (tons/acre)					
	Apr 8	Oct 28	2004 Total	2005				2-yr Total
				May 23	June 23	Jul 25	Total	
<b>Commercial Varieties—Available for Farm Use</b>								
Certified Kenland	96	60	2.95	2.61	1.06	0.30	3.97	6.92*
Freedom!	95	60	2.72	2.51	1.14	0.37	4.02	6.74*
FSG9601	90	25	3.17	2.26	0.53	0.12	2.90	6.08
Redland Max	90	33	2.54	2.74	0.51	0.24	3.50	6.04
Emarwan	90	20	2.58	2.52	0.67	0.25	3.44	6.02
Red Gold Plus	90	44	2.98	2.11	0.62	0.24	2.97	5.95
Kenway(KVMRS)	95	48	2.31	2.34	0.84	0.31	3.49	5.80
Kenton(KNARS)	88	51	2.72	1.94	0.83	0.25	3.01	5.74
<b>Experimental Varieties</b>								
KY tetraploid	96	88	3.08	3.13	0.89	0.38	4.40	7.47*
CW10002	94	58	2.96	2.29	0.73	0.29	3.31	6.27*
ZR0005R	90	23	2.86	2.16	0.86	0.37	3.39	6.25*
Freedom!MR	89	45	2.83	2.49	0.67	0.14	3.30	6.12
WVPB-RC-NT	89	38	2.72	2.48	0.61	0.13	3.22	5.94
Low Phenolic	78	26	2.35	2.59	0.67	0.22	3.48	5.83
ZR0004R	91	38	2.50	2.08	0.47	0.21	2.75	5.26
GAc1RC	56	10	2.18	2.01	0.40	0.05	2.47	4.65
Mean	88	42	2.71	2.39	0.72	0.24	3.35	6.06
CV,%	13	53	18.78	18.61	39.43	61.97	18.49	15.29
LSD,0.05	17	32	0.73	0.64	0.41	0.21	0.89	1.33

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

Variety	2005 Percent Stand		Yield (tons/acre)							
	Apr 15	Sep 21	2003 Total	2004 Total	2005				3-yr Total	
					May 12	June 13	Jul 29	Sept 21		Total
<b>Commercial Varieties—Available for Farm Use</b>										
Freedom!	40	3	3.81	7.27	0.82	0.51	0.55	0.00	1.89	12.97
Certified Kenland	33	1	3.75	6.67	0.65	0.50	0.47	0.00	1.62	12.04
Kenton(KNARS)	33	1	3.65	6.27	0.48	0.49	0.35	0.00	1.33	11.26
Solid	5	1	3.95	5.78	0.17	0.25	0.15	0.00	0.57	10.30
GDQ	2	0	3.87	5.01	0.02	0.14	0.02	0.00	0.19	9.08
GDSG	1	0	3.44	5.17	0.01	0.08	0.03	0.00	0.13	8.74
GDLH	1	0	3.56	5.04	0.01	0.02	0.01	0.00	0.04	8.64
Common	0	0	3.28	4.66	0.00	0.00	0.00	0.00	0.01	7.95
Regal(white)	45	58	3.03	4.00	0.43	0.27	0.10	0.09	0.90	7.93
CA Ladino(white)	30	35	2.96	3.90	0.45	0.32	0.07	0.01	0.85	7.71
Patriot(white)	40	70	2.51	4.25	0.42	0.27	0.13	0.08	0.90	7.66
Durana(white)	28	50	2.22	3.76	0.25	0.16	0.04	0.04	0.49	6.48
<b>Experimental Varieties</b>										
KY Tetraploid	58	10	3.92	8.86	0.92	0.71	0.66	0.06	2.35	15.13*
Freedom!MR	30	1	4.01	7.15	0.50	0.49	0.44	0.00	1.43	12.59
Low Phenolic	19	3	3.73	7.04	0.46	0.44	0.46	0.00	1.37	12.14
Mean	24	16	3.45	5.66	0.37	0.31	0.23	0.02	0.94	10.04
CV,%	51	59	10.55	14.70	64.69	40.27	56.09	84.80	38.27	11.01
LSD,0.05	17	13	0.32	1.19	0.35	0.18	0.19	0.04	0.51	1.58

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

**Table 8. Dry matter yields (tons/acre), seedling vigor and stand rating of red clover varieties sown April 15, 2005 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Jun 13, 2005	Percent Stand Oct 6, 2005	2005 Yield (tons/acre)			
			Jun 27	Jul 29	Sept 21	Total
<b>Commercial Varieties—Available for Farm Use</b>						
Freedom!	4.8	100	0.63	0.66	0.62	1.91*
Cinnamon Plus	5.0	100	0.57	0.59	0.37	1.53
Dominion	5.0	99	0.47	0.68	0.37	1.52
AA117ER	5.0	98	0.51	0.61	0.28	1.40
Certified Kenland	4.5	95	0.47	0.46	0.39	1.32
TripleTrust 350	5.0	95	0.56	0.41	0.33	1.30
Kenton	5.0	96	0.57	0.43	0.28	1.27
Kenway	5.0	100	0.54	0.41	0.31	1.26
Solid	4.0	86	0.48	0.37	0.22	1.07
CommonC	4.8	74	0.39	0.48	0.14	1.01
CommonA	5.0	58	0.50	0.33	0.09	0.92
<b>Experimental Varieties</b>						
RC9603	4.8	100	0.54	0.70	0.43	1.67*
Freedom!MR	5.0	100	0.52	0.68	0.42	1.63*
KY Tetraploid	5.0	99	0.52	0.51	0.47	1.50
RC9602	5.0	99	0.55	0.58	0.31	1.45
Low Phenolic	5.0	99	0.63	0.31	0.40	1.34
Mean	4.9	94	0.53	0.51	0.34	1.38
CV,%	8.2	5	19.94	41.64	19.55	17.95
LSD,0.05	0.6	7	0.15	0.30	0.09	0.35

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

<sup>1</sup> Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

**Table 9. Dry matter yields (tons/acre) and stand rating of red and white clover varieties sown August 25, 2003 at the Eden Shale farm near Owenton, Kentucky.**

Variety	2005 Percent Stand		Yield (tons/acre)					2-yr Total	
	Apr 12	Oct 28	2004 Total	2005 May 25	Yield (tons/acre)				
					Jun 29	Aug 8	Oct 4		Total
<b>Commercial Varieties—Available for Farm Use</b>									
Freedom!	80	49	2.89	0.68	0.49	0.34	0.04	1.55	4.43*
Certified Kenland	79	28	2.58	0.91	0.52	0.20	0.07	1.70	4.28
Kenton(KNARS)	76	33	2.85	0.78	0.36	0.21	0.06	1.41	4.26
Solid	50	19	2.59	0.57	0.33	0.12	0.05	1.07	3.66
GDLH	28	2	2.64	0.16	0.17	0.02	0.00	0.36	2.99
GDQ	20	2	2.51	0.14	0.12	0.02	0.00	0.28	2.79
GDSG	25	2	2.40	0.19	0.11	0.04	0.00	0.33	2.73
Common	11	1	2.19	0.11	0.08	0.00	0.00	0.19	2.38
Regal(white)	0	68	1.72	0.01	0.02	0.05	0.14	0.22	1.93
Patriot(white)	9	53	1.60	0.02	0.07	0.02	0.10	0.20	1.80
Durana(white)	1	53	1.63	0.01	0.01	0.00	0.07	0.10	1.73
<b>Experimental Varieties</b>									
Freedom!MR	81	45	3.10	0.99	0.61	0.31	0.10	2.01	5.11*
KY Tetraploid	79	53	2.61	1.01	0.53	0.33	0.12	2.00	4.60*
Low Phenolic	50	14	2.73	0.44	0.18	0.12	0.05	0.79	3.52
Mean	42	30	2.43	0.43	0.26	0.13	0.06	0.87	3.30
CV,%	26	46	13.05	48.76	48.32	60.30	76.26	40.74	15.25
LSD,0.05	16	20	0.45	0.3	0.18	0.11	0.09	0.51	0.72

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

**Table 10. Dry matter yields (tons/acre) and stand rating of red clover varieties sown April 6, 2005 at Quicksand, Kentucky.**

Variety	Percent Stand Dec. 5, 2005	2005 Yield (tons/acre)		
		Jul 11	Aug 15	Total
<b>Commercial Varieties—Available for Farm Use</b>				
Cinnamon Plus	97	1.61	0.81	2.42*
Kenton	98	1.50	0.92	2.42*
Certified Kenland	98	1.50	0.91	2.41*
Solid	90	1.61	0.75	2.36*
Dominion	97	1.47	0.84	2.31*
Kenway	98	1.46	0.73	2.18*
Common A	55	1.79	0.36	2.15*
Freedom!	98	1.28	0.83	2.11*
TripleTrust 350	87	1.39	0.57	1.96*
AA117ER	88	1.14	0.42	1.57
Common C	15	1.21	0.19	1.40
<b>Experimental Varieties</b>				
Freedom! MR	95	1.54	0.87	2.41*
RC 9602	98	1.45	0.93	2.38*
RC 9603	95	1.25	0.75	2.01*
KY Tetraploid	93	1.32	0.42	1.74
Low Phenolic	95	1.18	0.54	1.73
Mean	87	1.42	0.68	2.10
CV,%	8	13.79	29.67	16.83
LSD,0.05	12	0.33	0.34	0.59
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.				

**Table 11. Dry matter yields (tons/acre) and stand rating of white clover varieties sown April 7, 2004 at Lexington, Kentucky.**

Variety	2005 Percent Stand		Yield (tons/acre)				2-yr Total
	Apr 8	Oct 28	2004 Total	2005		Total	
				May 23	Jun 9		
<b>Commercial Varieties—Available for Farm Use</b>							
CA Ladino	68	60	1.57	0.93	0.48	1.41	2.98*
Seminole	50	65	1.44	0.57	0.29	0.86	2.30*
Excel	9	63	1.55	0.35	0.25	0.60	2.15
Regal	43	28	1.47	0.35	0.24	0.59	2.06
Super Haifa	2	30	1.59	0.15	0.12	0.28	1.87
<b>Experimental Varieties</b>							
KY synthetic	75	63	1.50	0.93	0.54	1.47	2.97*
RD19	58	55	1.44	0.90	0.38	1.27	2.72*
RD06	38	63	1.23	0.92	0.29	1.21	2.43*
GA-178	65	73	1.55	0.58	0.28	0.86	2.41*
Crusader	35	68	1.37	0.43	0.29	0.72	2.08
Mean	44	57	1.47	0.61	0.32	0.93	2.40
CV,%	30	26	19.42	61.17	32.65	41.63	20.22
LSD,0.05	19	21	0.41	0.54	0.15	0.56	0.70
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.							

**Table 12. Dry matter yields (tons/acre), seedling vigor and stand rating of white clover varieties sown April 15, 2005 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Jun 13, 2005	Percent Stand Oct 6, 2005	2005 Yield (tons/acre)			
			Jun 27	Jul 29	Sept 21	Total
<b>Commercial Varieties—Available for Farm Use</b>						
Will	4.5	98	0.35	0.78	0.64	1.77*
Crescendo	5.0	99	0.32	0.74	0.69	1.75*
Regal	4.5	99	0.24	0.72	0.63	1.59*
Colt	5.0	95	0.35	0.64	0.54	1.53*
Pinnacle	5.0	100	0.32	0.55	0.65	1.52*
Patriot	4.5	100	0.14	0.57	0.59	1.30
Common	4.5	99	0.18	0.38	0.62	1.18
Durana	3.8	99	0.11	0.46	0.52	1.10
Alice	4.0	86	0.17	0.49	0.38	1.04
Avoca	3.5	89	0.14	0.47	0.39	1.01
<b>Experimental Varieties</b>						
CW9701	5.0	100	0.24	0.63	0.70	1.58*
WC-1	4.8	99	0.26	0.62	0.64	1.52*
WC-2	4.8	100	0.26	0.55	0.59	1.40
KY Synthetic	3.5	89	0.13	0.43	0.40	0.95
Mean	5.0	97	0.23	0.57	0.57	1.37
CV,%	12.5	7	40.30	24.84	11.73	17.69
LSD,0.05	0.8	9	0.13	0.20	0.10	0.35

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

<sup>1</sup> Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.



**Table 13. Performance of red clover varieties across years and locations.**

Variety	Proprietor/KY Distributor	Lexington						Quicksand 2005 05	Princeton				Eden Shale		
		2003 <sup>1</sup>			2004		2005		2003			2005	2003		
		03 <sup>2</sup>	04	05	04	05	05		03	04	05	05	04	05	
<b>Commercial Varieties—Available for Farm Use</b>															
AA117ER	ABI Alfalfa						*	X					X		
Cinnamon Plus	FFR/Southern States	X	*	X			*	*					X		
Common A	Public	X	X	X			*	*	X	X	X	X	X	X	X
Common C	Public						X	X					X		
Dominion	Seed Research of Oregon						*	*					X		
Emarwan	Van Dyke Seed Co.					*	*								
FSG9601	Allied Seed, L.L.C.					*	X								
Freedom!	Barenbrug	X	*	X	*	*	*	*	*	X	*	*	*	*	*
GDLH	Public	X	X	X						*	X	X		X	X
GDSG	Public	X	X	X						X	X	X		X	X
GDQ	Public	X	X	X						*	X	X		X	X
Kenland, certified	KY Agric. Exp. Station	*	*	*	*	*	*	*	*	*	X	*	X	X	*
Kenton (KNARS)	KY Agr. Exp. Station	X	*	X	*	X	*	*	*	*	X	X	X	X	X
Kenway (KVMRS)	KY Agr. Exp. Station					X	*	*	*				X		
Red Gold Plus	Turner Seed Co.					*	X								
Redland Max	ABI Alfalfa					*	*								
Solid	Improved Forages Inc.	X	X	X			*	*	*	X	X	X	X	X	X
Starfire	Ampac Seed Co.														
TripleTrust 350	ABI Alfalfa						*	*					X		
<b>Experimental Varieties</b>															
CW10002	Cal/West Seeds					*	*								
Freedom! MR	KY Agr. Exp. Station	*	*	*	*	*	*	*	*	*	X	*	*	*	*
GAc1RC	Univ. of Georgia					X	X								
KY Low phenolic	KY Agr. Exp. Station	X	*	X	X	*	*	X	*	X	X	X	X	*	X
KY Tetraploid	KY Agr. Exp. Station	*	*	X	*	*	*	X	*	*	*	*	X	X	*
RC9602	Allied Seed, L.L.C.						*	*					X		
RC9603	Allied Seed, L.L.C.						*	*					*		
WVPB-RC-NT	Smith Seed Services					*	*								
ZR0004R	ABI Alfalfa					*	X								
ZR0005R	ABI Alfalfa					*	*								

<sup>1</sup> Establishment year

<sup>2</sup> Harvest year

Open boxes indicate the variety was not in the test.

x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test.

\*Not significantly different from the top-ranked red clover variety in the test.

**Table 14. Performance of white clover varieties across years and locations.**

Variety (Type)	Proprietor/KY Distributor	Lexington					Princeton				Eden Shale	
		2003 <sup>1</sup>			2004		2003			2005	2003	
		03 <sup>2</sup>	04	05	04	05	03	04	05	05	04	05
<b>Commercial Varieties—Available for Farm Use</b>												
Advantage (Ladino)	Allied Seed, L.L.C.	*	*	*								
Alice	Barenbrug									X		
Avoca (Dutch)	DLF International Seeds									X		
Barblanca	Barenbrug	X	X	*								
California Ladino	Public				*	*	*	*	*			
Colt (Intermediate)	Seed Research of Oregon	X	X	*						*		
Common (Dutch)	Public									X		
Cresendo (Ladino)	Cal/West Seeds									*		
Durana (Dutch)	Pennington	X	X	*			X	*	X	X	*	*
Excel (Ladino)	Allied Seed, L.L.C.				*	X						
Patriot (Intermediate)	Pennington	X	*	*			*	*	*	X	*	*
Pinnacle (Ladino)	Allied Seed, L.L.C.									*		
Regal (Ladino)	Public	X	*	*	*	X	*	*	*	*	*	*
Seminole (Ladino)	Saddle Butte Ag. Inc.				*	*						
Super Haifa (Intermediate)	Allied Seed, L.L.C.				*	X						
Will (Ladino)	Allied Seed, L.L.C.									*		
<b>Experimental Varieties</b>												
Crusader	Barenbrug				*	X						
CW 7000	Cal/West Seeds	*	*									
CW 9701	Cal/West Seeds									*		
GA-178	Univ. of Georgia				*	*						
KY Synthetic (Dutch)	KY Agr. Exp. Station				*	*				X		
RD06 (Intermediate)	Allied Seed, L.L.C.				*	*						
RD19 (Ladino)	Allied Seed, L.L.C.				*	*						
WC-1	Oregon Seeds, Inc.									*		
WC-2	Oregon Seeds, Inc.									X		
<sup>1</sup> Establishment year <sup>2</sup> Harvest year Open boxes indicate the variety was not in the test. x in the box indicates the variety was in the test but yielded significantly less than the top variety in the test. *Not significantly different from the top-ranked white clover variety in the test.												



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