Progress Report 389

The 1996 Red Clover Report

The Forage Variety Testing Program
Serving Kentucky's Farmers With Pride From East to West

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Introduction

Red clover (*Trifolium pratense*) 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 very versatile as a forage crop. Stands are generally productive for two or 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, yield, and animal acceptance.

Yield and persistence of red 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. High yields and persistence (as measured by percent stand) are two indications that a red clover variety is resistant to or tolerant of these diseases when grown in Kentucky.

This report provides current yield and percent stand data on red clover varieties included in yield trials in Kentucky as well as guidelines for selecting red clover varieties.

Important Considerations in Selecting a Red Clover Variety

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. Red clover generally produces measurable yields for three years, including the establishment year, with the highest production occurring in the second year. Some varieties of red clover lose their stand after the end of the second year, while others that are not adapted to Kentucky conditions may not survive the first winter. These varieties must be reseeded more often than more persistent varieties, increasing seed and establishment costs.

Seed Quality. Buy either certified or Plant Variety Protected (PVP) seed, which will guarantee that the genetics and performance you are paying for are in the bag. Look for the blue tag, which must be attached to all bags of certified seed or look for Plant Variety Protection labelling, which is the proprietor's guarantee. Other information on the label will include the test date, which must be within the previous nine months, and 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

Six studies are included in this report. Two are part of the Kentucky Red Clover Breeding Program (sown in 1995 and 1996 at Lexington) and the other four are part of The Forage Variety Testing Program (sown in 1995 at Quicksand, 1996 at Lexington, and in 1995 and 1996 at Princeton). The soils at Quicksand (Pope), Lexington (Maury) and Princeton (Crider) were well-drained silt loams. All are well-suited to red clover production. Plots were 4 x 15 feet and were arranged in a randomized complete block design with four replications. Seedings were made at 12 pounds of seed per acre into a prepared seedbed using a disk drill. The first cutting in the seedling year was delayed to allow the red clover to completely reach maturity as indicated by full bloom, which generally occurs about 60-90 days after seeding. Otherwise, harvests were taken when the red clover was in the bud to early-flower stage using a sickle-type forage plot harvester. Fresh weights were measured in the field and converted to dry matter production using long-term averages for percent dry matter of red clover. Management of all tests for establishment, fertility, and harvest management was according to University of Kentucky Cooperative Extension Service recommendations. Weeds were controlled so as to not limit production or persistence.

Results and Discussion

Weather data for Quicksand, Lexington, and Princeton are presented in Table 1. Temperatures across the state were warmer in the winter and late spring with March and April somewhat cooler. July and August were near normal at all locations except Lexington where July was cooler. September was also cooler except at Quicksand, which was near normal. Temperatures in October were near normal everywhere except Quicksand, which was much warmer. All locations measured a surplus of >3 inches of precipitation for the growing season. Generally, January, April, May, and September were wetter than normal, while February, March, and August were drier. June and October were wetter at Quicksand and Princeton but dry at Lexington. July was dry everywhere but Princeton. Precipitation was not only unevenly distributed across the season at all locations but also within months. There were numerous rainfall events of greater than 1 inch and several in-

stances in which the total rainfall for the month fell in a matter of 2-3 days.

Yield data (on a dry matter basis) and ratings for percent stand and disease infestation for all tests are presented in Tables 2-7. 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. Statistical analyses were performed on all red clover data (including experimentals) to determine if the apparent differences are truly due to variety or just due to chance. The variety with the highest numerical value in each column is marked with two asterisks (**) and those varieties not significantly different from that variety 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 CV's and larger LSD's.

Percent stand, a visual estimate of ground cover, reflects the cultivar's seedling vigor, ability to compete with weeds, resistance to disease, and stand persistence. In general, the highest yielding varieties in any test were also the most persistent as determined by percent stand.

First cutting yields in established tests at Quicksand (Table 2) and Princeton (Table 6) were very close to those measured in previous years for equivalent tests. The first cutting for the 1995 Breeding test at Lexington was somewhat lower but the total annual yields were comparable (Table 4). The 1996 Variety test at Lexington yielded exceptionally well (Table 3), while the 1996 Breeder test and the new seeding at Princeton performed as expected (Tables 5 &7).

In addition to the commercially available varieties and experimental lines, selected "common" red clovers are included in the variety tests. Common red clover, generally sold as "medium red clover variety unknown," is unimproved red clover with an unknown performance record. Altaswede, a mammoth or "single-cut" red clover developed in Canada is also included. Several of the 'common' varieties performed quite well in the first year in several tests; however, these generally do not yield well after that. Some of the 'common' types yielded well in both years but these are the exception and selecting a variety based on the exception is risky at best.

Table 8 summarizes information about proprietors, distributors and yield performance across years and locations for all the varieties currently included in tests discussed in this report. Varieties are listed in alphabetical order with the experimental varieties at the bottom. Remember that the experimental varieties are not available for farm use, while commercial varieties can be purchased from dealerships. In Table 8, shaded areas indicate that the variety was not in that particular test (labelled at the top of the column) while clear blocks mean that the variety was in the test. A double Asterisk (**) indicates that the variety was the highest yielding variety in the test for that year. A single asterisk (*) means that the variety was not significantly different from the highest yielding variety. Remember to look at data from several years and locations when choosing a variety of red clover rather than results from one test year as is reported in Tables 2-7. Make sure seed of the variety selected is properly labelled and will be available when needed.

Summary

Proper management, beginning with land preparation and continuing throughout the life of the stand, is necessary for even the highest yielding, most pest-resistant variety to be productive. Maintaining soil fertility at recommended levels, based on soil tests, and controlling weeds are a must. Harvesting at the appropriate stage of maturity will produce 3 cuttings in the seeding year and four to five cuttings every year thereafter before mid-September in Kentucky. Other College of Agriculture publications related to the establishment, management and harvesting of red clover that are available from the local county Extension office are listed on page 7.

Table 1. Temperature and Rainfall at Quicksand, Lexington, and Princeton in 1996.

	Quicksand				Lexington				Princeton			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
MON	F	DEP	IN	DEP	F	DEP	IN	DEP	F	DEP	IN	DEP
JAN	34	+3	5.02	+1.73	31	+0	4.38	+1.52	36	+2	4.94	+1.14
FEB	38	+5	2.17	-1.43	36	+1	1.50	-1.71	40	+2	1.74	-2.69
MAR	39	-2	4.04	-0.30	39	-5	4.44	+0.04	43	-4	4.38	-0.56
APR	52	-1	4.59	+0.49	51	-4	5.15	+1.27	56	-3	5.98	+1.18
MAY	66	+4	5.65	+1.17	66	+2	8.23	+3.76	70	+3	5.19	+0.23
JUN	72	+2	5.17	+1.35	72	+0	3.45	-0.21	75	+0	4.13	+0.28
JUL	73	-1	4.75	-0.50	73	-3	4.80	-0.20	77	-1	7.04	+2.75
AUG	74	+1	2.79	-1.22	74	-1	3.13	-0.80	78	+1	0.82	-3.19
SEP	66	+0	4.86	+1.34	66	-2	5.11	+1.91	69	-2	6.52	+3.19
OCT	58	+4	3.44	+0.53	57	-0	1.39	-1.18	61	+2	6.21	+3.16

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

Table 2. Dry Matter Yields (Tons/acre) And Percent Stand Ratings of Red Clover Varieties Sown 14 April 1995, at Quicksand, Kentucky.

Variety	1996 % Stand Oct 29	1995 Total	1996 Harvests					1996 Total	2-yr Total
			May 15	Jun 14	Jul 16	Aug 16	Oct 29		
Commercial Varieties - Available For Farm Use									
KENLAND,CERT	47.50*	2.96*	2.58*	0.66	0.91*	0.79*	0.69*	5.63*	8.59*
CINNAMON	47.50*	2.56*	2.81*	0.55	1.00*	0.66*	0.58*	5.60*	8.16*
CONCORDE	15.00	2.98*	2.82**	0.70*	0.60*	0.45	0.39*	4.97*	7.94*
COMMON-O	35.00*	2.73*	2.56*	0.94*	0.62*	0.57*	0.42*	5.11*	7.83*
EMARWAN	15.00	2.57*	2.47*	0.83*	0.52	0.38	0.39*	4.59	7.16*
GREENSTAR	16.25	2.36*	2.27	0.94*	0.64*	0.41	0.41*	4.68	7.04
COMMON-P	35.00*	2.06	2.49*	0.71*	0.61*	0.52*	0.27	4.61	6.67
RANDOLPH	40.00*	2.09	2.34	0.56	0.74*	0.40	0.45*	4.50	6.59
ALTASWEDE	5.00	2.32*	2.55*	0.73*	0.26	0.21	0.21	3.96	6.28
KENLAND,UNCERT	1.25	2.30*	2.15	1.05*	0.01	0.01	0.01	3.22	5.52
COMMON-R	1.25	2.19*	2.08	1.16**	0.01	0.01	0.00	3.26	5.45
COMMON-Q	2.50	2.07	2.03	1.01*	0.02	0.02	0.02	3.09	5.15
Experimental Varieties - Not Available For Farm Use									
KENLAND,FNDN	52.50**	2.92*	2.81*	0.75*	0.92*	0.84*	0.78**	6.10**	9.02**
KENLAND,BRDR	52.50**	3.00**	2.31	0.71*	1.11**	0.94**	0.69*	5.76*	8.76*
RC8501	25.00	2.82*	2.40*	0.61	0.75*	0.61*	0.53*	4.91*	7.73*
RC-1	11.25	2.30*	2.49*	1.03*	0.35	0.24	0.26	4.37	6.66
FREEDOM!,SM	22.50	1.73	2.33	1.04*	0.51	0.33	0.24	4.46	6.20
FREEDOM!,LG	25.00	1.76	2.17	0.89*	0.48	0.29	0.27	4.08	5.85
MEAN	25.00	2.43	2.43	0.83	0.56	0.43	0.37	4.60	7.03
CV, %	62.51	25.54	13.39	40.11	73.53	70.07	78.34	20.48	19.70
LSD, 0.05	22.19	0.88	0.46	0.47	0.52	0.43	0.41	1.34	1.97

1995 total includes 5 harvests dated Jun 15, Jul 14, Aug 11, Sep 12, and Oct 31.
***Highest numerical value in the column.*
**Not significantly different from the highest numerical value in the column based on the 5% LSD.*

Table 3. Dry Matter Yields (Tons/acre) of Red Clover Varieties Sown 17 April 1996, at Lexington, Kentucky.

Variety	1996 Harvests				1996 Total
	Jul 15	Aug 09	Sep 09	Oct 28	
Commercial Varieties - Available For Farm Use					
KENLAND,CERT	2.55*	1.02**	1.17*	1.42*	6.16**
COMMON-U	2.46*	0.99*	1.14*	1.49**	6.09*
COMMON-T	2.92**	0.74	1.11*	1.02	5.79*
CINNAMON	2.68*	0.88*	1.16*	1.05	5.76*
RED-GOLD	2.58*	0.77	1.14*	1.12	5.62*
GREENSTAR	2.51*	0.81	1.03	1.19	5.54*
ROBUST	2.50*	0.77	1.07	1.08	5.43*
KENLAND,UNCERT	2.47*	0.79	1.07	1.10	5.43*
COMMON-S	2.25	0.82	0.88	1.13	5.08
ASTRED	2.25	0.45	0.89	1.05	4.65
CONCORDE	2.26	0.61	0.73	0.99	4.58
START	2.16	0.51	0.93	0.76	4.36
ALTASWEDE	2.15	0.50	0.62	0.43	3.70
Experimental Varieties - Not Available For Farm Use					
KENLAND,BRDR	2.61*	1.01*	1.08*	1.38*	6.08*
KENLAND,FNDN	2.45	0.99*	1.16*	1.44*	6.04*
WVPB-RC-A4	2.56*	0.96*	1.11*	1.26	5.89*
FREEDOM!	2.59*	0.85	1.06	1.18	5.68*
WILDCAT	2.74*	0.82	1.08*	0.98	5.62*
87-A	2.52*	0.91*	1.06	1.02	5.51*
RS,C3-27	2.35	0.59	1.36**	0.79	5.09
MEAN	2.48	0.79	1.04	1.09	5.40
CV, %	13.27	13.56	19.71	14.21	11.18
LSD, 0.05	0.47	0.15	0.29	0.22	0.86

***Highest numerical value in the column.*
**Not significantly different from the highest numerical value in the column based on the 5% LSD.*

Table 4. Dry Matter Yields (Tons/acre) of Red Clover Varieties Sown 3 May 1995, at Lexington, Kentucky as Part of The Red Clover Breeding Program.

Variety	1995 Total	1996 Harvests				1996 Total	2-yr Total
		May 24	Jul 01	Aug 08	Sep 09		
Commercial Varieties - Available For Farm Use							
SCARLETT	0.46*	1.51*	1.82*	1.90**	0.70*	5.94*	6.40*
CONCORDE	0.48*	1.83**	1.85*	1.48*	0.71*	5.88*	6.36*
RAM	0.44*	1.78*	1.77	1.63*	0.65*	5.82*	6.26*
CINNAMON	0.45*	1.63*	1.86*	1.28	0.68*	5.45*	5.90*
MARATHON	0.42*	1.48	1.93*	1.54*	0.52	5.47*	5.89*
RENEGADE	0.46*	1.23	1.79*	1.41*	0.77*	5.20	5.67*
RED-STAR	0.44*	1.49	2.04*	1.14	0.52	5.19	5.63
ACCLAIM	0.39	1.57*	1.66	1.22	0.49	4.95	5.33
ARLINGTON	0.42*	1.35	1.43	0.90	0.75*	4.43	4.84
CHEROKEE	0.54*	0.80	1.05	0.79	0.67*	3.32	3.87
Experimental Varieties - Not Available For Farm Use							
KENSTAR,BRDR	0.54*	1.72*	2.23*	1.80*	0.66*	6.41**	6.95**
KENLAND,BRDR	0.57**	1.62*	2.24**	1.84*	0.52	6.22*	6.79*
ISI-84-LM	0.54*	1.32	1.94*	1.33*	0.61*	5.20	5.74*
FREEDOM!,LG	0.55*	1.22	1.74	1.22	0.73*	4.91	5.46
CF*FC	0.37	1.05	1.67	1.57*	0.73*	5.02	5.38
GP8	0.41*	1.23	1.61	1.41*	0.68*	4.93	5.34
FREEDOM!,SM	0.46*	1.31	1.35	1.34*	0.50	4.50	4.96
TEDI	0.46*	0.90	1.18	0.85	0.85**	3.78	4.25
TAMARA	0.50*	0.80	1.19	0.90	0.83*	3.73	4.23
MEAN	0.47	1.36	1.70	1.35	0.66	5.07	5.54
CV, %	27.18	17.01	18.90	31.55	35.29	16.64	16.85
LSD, 0.05	0.18	0.33	0.46	0.60	0.33	1.20	1.32

1995 total includes 1 harvest dated Sep 11.
**Highest numerical value in the column.*
**Not significantly different from the highest numerical value on the column based on the 5% LSD.*

Table 5. Dry Matter Yields (Tons/acre) of Red Clover Varieties Sown 17 April 1996, at Lexington, Kentucky as Part of the Red Clover Breeding Program.

Variety	1996 Harvests		1996 Total
	Jul 11	Aug 13	
Commercial Varieties - Available For Farm Use			
RENEGADE	1.37*	0.63**	1.99*
ROBUST	1.46*	0.53*	1.99*
CINNAMON	1.41*	0.54*	1.96*
ARLINGTON	1.35*	0.61**	1.95*
RAM	1.34*	0.59*	1.94*
RED-GOLD	1.43*	0.48	1.91*
GREENSTAR	1.38*	0.49	1.88*
RANDOLPH	1.28*	0.56*	1.84*
ACCLAIM	1.38*	0.46	1.84*
SCARLETT	1.17*	0.42	1.59*
CONCORDE	1.14*	0.44	1.59*
ASTRED	1.07	0.30	1.36
START	0.51	0.23	0.73
Experimental Varieties - Not Available For Farm Use			
KENSTAR,BRDR	1.53**	0.56*	2.08**
KENLAND,BRDR	1.32*	0.56*	1.88*
WILDCAT	1.29*	0.49	1.78*
WVPB-RC-A4	1.32*	0.42	1.74*
FREEDOM!	1.14*	0.52*	1.66*
MEAN	1.27	0.49	1.76
CV, %	23.96	18.87	20.25
LSD, 0.05	0.43	0.13	0.51

***Highest numerical value in the column*
**Not significantly different from the highest numerical value in the column based on the 5% LSD.*

Table 6. Dry Matter Yields (Tons/acre) and Percent Stand Ratings of Red Clover Varieties Sown 23 March 1995, at Princeton, Kentucky.

Variety	1996 % Stand		1995 Total	1996 Harvests				1996 Total	2-yr Total
	Mar 05	Sep 11		May 15	Jun 13	Jul 18	Aug 15		
Commercial Varieties - Available For Farm Use									
COMMON-P	72.50*	57.50	1.79*	0.86*	1.80*	1.09*	0.84**	4.60*	6.39*
KENLAND,CERT	82.50*	87.50**	1.74*	1.03*	1.88*	1.12*	0.58*	4.61*	6.35*
CINNAMON	51.25	50.00	1.75*	0.87*	1.84*	1.00*	0.62*	4.33*	6.07*
EMARWAN	86.25*	76.25*	1.62	0.93*	1.65*	0.95	0.64*	4.17*	5.79*
CONCORDE	36.25	31.25	1.97*	0.58	1.63	1.03*	0.48	3.72	5.69
GREENSTAR	81.25*	58.75	1.69*	0.86*	1.71*	1.01*	0.38	3.96*	5.65
RANDOLPH	46.75	40.00	1.60	0.79*	1.60	1.11*	0.55	4.05*	5.65
COMMON-O	40.00	42.50	1.47	0.76	1.77*	1.15**	0.45	4.13*	5.60
COMMON-R	17.50	16.25	1.71*	0.37	1.43	1.07*	0.53	3.40	5.12
KENLAND,UNCERT	6.25	3.75	1.82*	0.28	1.38	1.02*	0.47	3.15	4.97
COMMON-Q	3.75	2.50	1.47	0.28	1.41	0.86	0.37	2.92	4.39
Experimental Varieties - Not Available For Farm Use									
KENLAND,BRDR	65.00*	85.00*	1.88*	0.96*	1.91**	1.07*	0.68*	4.62**	6.50**
KENLAND,FNDN	93.75**	86.25*	1.59	1.06**	1.84*	1.02*	0.64*	4.55*	6.14*
RC8501	45.00	38.75	2.03**	0.73*	1.61	1.01*	0.54	3.89	5.92*
RC-1	36.25	36.25	1.65	0.73*	1.60	1.06*	0.52	3.91	5.56
FREEDOM!,LG	50.00	58.75	1.58	0.65	1.72*	1.03*	0.58*	3.98*	5.55
FREEDOM!,SM	56.25	58.75	1.50	0.73*	1.81*	0.75	0.46	3.76	5.26
MEAN	51.21	48.82	1.70	0.73	1.68	1.02	0.55	3.98	5.68
CV, %	49.45	34.71	15.41	28.32	11.63	11.66	34.69	12.52	8.98
LSD, 0.05	36.02	24.10	0.37	0.30	0.28	0.17	0.27	0.71	0.72

1995 total includes 2 harvests dated Jul 06 and Aug 10.
***Highest numerical value in the column.*
**Not significantly different from the highest numerical value in the column based on the 5% LSD.*

Table 7. Dry Matter Yields (Tons/acre) of Red Clover Varieties Sown 12 April 1996, at Princeton, Kentucky.

Variety	1996 Harvests			1996 Total
	Jul 18	Aug 15	Oct 30	
Commercial Varieties - Available For Farm Use				
COMMON-O	0.63*	0.98**	0.67*	2.29*
COMMON-P	0.59	0.98**	0.69**	2.26*
KENLAND,CERT	0.69*	0.90*	0.66*	2.25*
GREENSTAR	0.76*	0.81*	0.56*	2.13*
EMARWAN	0.77**	0.81*	0.51	2.10*
RANDOLPH	0.53	0.91*	0.61*	2.06*
CINNAMON	0.64*	0.87*	0.53	2.04*
CONCORDE	0.49	0.76	0.56*	1.81
COMMON-R	0.35	0.84*	0.47	1.67
KENLAND,UNCERT	0.30	0.80	0.48	1.58
COMMON-Q	0.23	0.77	0.37	1.37
ALTASWEDE	0.50	0.62	0.21	1.33
Experimental Varieties - Not Available For Farm Use				
KENLAND,FNDN	0.75*	0.95*	0.64*	2.33**
KENLAND,BRDR	0.77**	0.93*	0.60*	2.29*
FREEDOM!	0.63*	0.89*	0.56*	2.08*
RC8501	0.53	0.88*	0.59*	2.00
RC-1	0.55	0.84*	0.41	1.80
MEAN	0.57	0.86	0.54	1.96
CV, %	22.19	15.12	17.91	11.28
LSD, 0.05	0.18	0.18	0.14	0.31

***Highest numerical value in the column.*
**Not significantly different from the highest numerical value in the column based on the 5% LSD.*

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Table 8. Performance of Red Clover Varieties Across Years and Locations		Quicksand			Lexington			Princeton		
		1995[1,2]		1996[2]	1995[3]		1996[3]	1995[2]		1996[2]
Variety	**Proprietor/KY Distributor**	**95**	**96**	**96**	**95**	**96**	**96**	**95**	**96**	**96**
Commercial Varieties - Available for Farm Use										
Acclaim	Allied Seed Coop./Scott Seed						*			
Altaswede	Farmer ecotype, Canada/Public									
Arlington	WI Agric. Exp. Sta./Public				*		*			
Astred										
Atlas	Northrup King									
Cherokee	FL Agric. Exp. Sta./Public				*					
Cinnamon	FFR/Southern States	*	*	*	*	*	*	*	*	*
Common O	Farmer ecotype/Public	*							*	*
Common P	Farmer ecotype/Public							*	*	*
Common Q	Farmer ecotype/Public									
Common R	Farmer ecotype/Public									
Common S	Farmer ecotype/Public									
Common T	Farmer ecotype/Public			*						
Common U	Farmer ecotype/Public			*						
Emarwan		*							*	*
Greenstar	Genesis Turf and Forage/Green Seed			*			*	**	*	*
Kenland, certified seed	KY Agric. Exp. Sta./Public	*	*	**				*	*	*
Kenland, uncertified seed	Public			*				*		
Marathon	WI Agric. Exp. Sta./Public				*	*				
Ram	ABI				*	*	*			
Randolph	Allied Seed						*	*	*	*
Red Gold	Production Services, McDaniel Seeds/Turner Seed			*			*			
Redland III Brand/Concorde	ABI	*	*		*	*	*	*		
Red Star	Vista Seeds				*					
Renegade	International Seeds/Green Seed				*		*			
Robust	Scott Seed/Sphar Seed			*			*			
Scarlett	Dairyland				*	*	*			
Start	Barenbrug USA/TFI									
Experimental Varieties - Not Available for Farm Use										
87-A	Northrup King			*						
CF*FC	Ky Agric. Exp. Sta./Experimental									
Freedom! (large seed)	KY Agric. Exp. Sta./Experimental			*	*		*	*	*	*
Freedom! (small seed)	KY Agric. Exp. Sta./Experimental				*					
GP8 Multiple Head	KY Agric. Exp. Sta./Experimental									
ISI-84-KM	International Seeds				*					
Kenland, breeder seed	KY Agric. Exp. Sta./Experimental	**	*	*	**	*	*	*	**	*
Kenland, foundation seed	KY Agric. Exp. Sta./Experimental	*	**	*				*	*	**
Kenstar, breeder seed	KY Agric. Exp. Sta./Public				*	**	**			
RC-1	DLF/Experimental							*		
RC8501	Allied Seed/Experimental	*						**		
Tedi Tetraploid	France				*					
Temara Tetraploid	France				*					
Wildcat	Olsen-Fennell Seeds/Experimental			*			*			
WVPB-A-4	Production Service International/Experimental			*						
RS, C3 27, White clover	Whitetail Institute of America/Experimental									

[1]Establishment year
[2]Tests sown as part of The Forage Variety Testing Program
[3]Tests sown as part of the Kentucky Red Clover Breeding Program
[4]Harvest year

Shaded boxes indicate that the variety was not in the test.
***Highest yielding variety in the test for that year.*
**Not significantly different from the highest yielding variety in the test for that year.*

The following is a list of University of Kentucky Agricultural Extension publications related to red clover management.

AGR-1	Lime and Fertilizer Recommendations
AGR-2	Producing Red Clover Seed in Kentucky
AGR-18	Grain and Forage Crop Guide for Kentucky
AGR-24	Kenstar Red Clover
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-148	Weed Control Strategies for Alfalfa and Other Forage Legume Crops
	Seed Tags: What They Reveal
ENT-17	Insect Management Recommendations for Field Crops and Livestock
PPA-10d	Kentucky Plant Disease Management Guide for Forage Legumes

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