

## 1993 Kentucky Alfalfa Variety Test Report

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### Introduction

Alfalfa (*Medicago sativa*) is historically the highest yielding, highest quality forage legume grown in Kentucky. It forms the basis of Kentucky's cash hay enterprise and is an important component in dairy, horse, beef and sheep diets. In 1990, 320,000 acres of alfalfa were produced in Kentucky, averaging 3.4 tons of dry matter yield per acre. At \$75 per ton, the value of this alfalfa to Kentucky farmers would be \$81.6 million. Variety selection should be the first step in establishing a stand of alfalfa because it can make the difference between selling 5 tons of hay per acre per year or 8 tons or it can make the difference between harvesting at stand for five or more years or losing it in the second year or even at establishment.

This report provides current yield data on varieties in the Kentucky Alfalfa Variety Trials as well as guidelines for selecting alfalfa varieties.

### Considerations in Selecting an Alfalfa Variety

When choosing a variety, many factors must be considered. A desirable alfalfa variety will be locally adapted, high yielding, persistent, winter hardy, resistant to diseases, and available as certified seed, in addition to high-yielding.

**Local Adaptation and Persistence.** High yields in variety tests over a range of years and locations within the region are the best indication that a variety is locally adapted and persistent. Several varieties are adapted for use in Kentucky as determined from the test results in this report.

**Winter Hardiness.** Each variety has a fall dormancy rating ranging from 1 (very dormant) to 9 (non-dormant). Varieties with lower dormancy ratings are slower to start growing in the spring and stop growing sooner in the fall. Generally alfalfa should have a fall dormancy rating of 2-5 to perform well in Kentucky and have good winter survival. Ratings of 6 and above are not winter-hardy under Kentucky conditions.

**Disease and Pest Resistance.** In Kentucky, producers should use varieties that have at least an "MR" (moderate resistance) rating to four major diseases of alfalfa: Phytophthora root rot (PRR), anthracnose (An), bacterial wilt (BW) and fusarium wilt (FW). Even higher levels of resistance are recommended on farms where the diseases have been diagnosed.

Phytophthora root rot is a fungal disease associated with poorly drained soils or excessive rainfall. This disease causes yellowish to reddish-brown areas on roots and crowns that eventually become black and rotten. The topgrowth of infected plants appears stunted and yellow.

Anthrachnose, also caused by a fungus, attacks the stems of alfalfa, preventing water flow to the rest of the shoot and causing sudden wilting. These wilted shoots have a characteristic "shepherd's crook" appearance. Anthracnose can also cause a bluish-black crown rot.

Bacterial wilt and fusarium wilt are infections of the water-conducting tissues of alfalfa roots that do not cause any noticeable root rot. These diseases prevent water flow to leaves resulting in wilting of shoots and the eventual death of infected plants. Roots infected with bacterial wilt often have a yellowish-brown discoloration of the inner woody cylinder of the taproot. Fusarium infection can be recognized by brown to red streaks in the inner woody cylinder of the taproot.

Tests are currently under way to measure the effect of Aphanomyces root rot (ARR) on alfalfa yields in Kentucky. This disease is known to affect new seedlings on rare occasions in Kentucky but it is still unclear how ARR affects established alfalfa.

Finally, there is no varietal resistance to Sclerotinia crown and stem rot. Although confusing claims exist, at this time no varieties have true genetic resistance to the alfalfa weevil and potato leafhopper. Claims of resistance to potato leafhopper is actually resistance to yellowing, commonly called "hopper burn". Incorporating resistance to these and other pests of alfalfa is the goal of alfalfa breeders nationwide.

**Seed Quality.** Buy high quality, certified seed that has high germination and few other crop and weed seed. This information is shown on the label. The test date, which indicates when the germination was last tested, must be within the previous nine months. The use of certified seed assures 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. Order seed well in advance of planting time to assure that it is available when needed.

#### Description of the Tests

Alfalfa variety tests were established at Lexington (1990 & 1991), Bowling Green (1990 & 1992), and Princeton (1990). The soils at all locations are well-suited to alfalfa in that they are well-drained silt loams (Maury, Pembroke and Crider at Lexington, Bowling Green and Princeton, respectively). Plots were 4 x 15 feet in a randomized complete block design with four replications. In each test, 20 pounds of seed per acre were planted into a prepared seedbed using a disk drill.

Current management recommendations for Kentucky for soil fertility and weed and insect control were employed in all tests. Plots were harvested with a sickle-type forage plot harvester. First cuttings in the seedling year are delayed to allow the alfalfa to completely reach maturity as indicated by full bloom, which generally occurs about 80 days after seeding. Otherwise, harvests were taken when the alfalfa was in the bud to early-flower stage. Fresh weights were measured in the field and occasional subsamples were taken and weighed and oven dried and reweighed to determine percent dry matter.

## Results and Discussion

Weather data for Lexington, Bowling Green, and Princeton are presented in Table 1. Spring and fall were slightly cooler than normal, while July and August were warmer. Precipitation was below average for most of the growing season. In months with a surplus, rain tended to come in events of greater than 1". Therefore, yields are somewhat lower than what these levels of rainfall would support under more ideal conditions.

Yield data (on an oven-dry basis) for all tests are reported in Tables 2-7. These tables list the varieties in order from highest to lowest total production (for the life of the test). Yields are given by cutting for 1992 and by year for each year of production.

Statistical analyses were performed on all alfalfa yield data to determine if the apparent differences are truly due to variety or just due to chance. The highest yielding variety in each column is marked with two asterisks (\*\*). Those varieties not significantly different from the highest yielding variety are marked with one asterisk (\*). To determine if two varieties are truly different, compare the difference between the two varieties to the Least Significant Difference (L.S.D.) at the bottom of the column. If the difference is equal to or greater than the L.S.D., the varieties are truly different when grown under the conditions at a given location. The Coefficient of Variation (C.V.), 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 C.V.'s and larger L.S.D.'s.

With the exception of Princeton, alfalfa yields across the state were about one ton/acre higher than 1992. That yield difference is due in part to the October harvest; however, yields of all cuttings, except June, were greater.

The 1990 seeding at Lexington declined visibly during the summer of 1992 and a Fusarium sp. was isolated from a number of crowns suggesting the probable cause. Yields in 1993 reflected stand loss due to that infection.

The 1992 seeding at Bowling Green appears to be more susceptible to drought

than the area established in 1990. Since there was limited moisture throughout the summer at Bowling Green, regrowth after the August harvest was immeasurable in September.

The Bowling Green tests are on soils that are naturally infested with both *Phytophthora* and *Aphanomyces* root rot pathogens. In contrast, the Lexington and Princeton tests are on soils that are not infested with detectable levels of either pathogen. Performance of varieties common to all locations continues to be monitored to determine what effect these two pathogens have on yield and stand life. At present, it is not known whether ARR in particular has a negative effect on alfalfa plants and yield after establishment.

Table 8 summarizes information about proprietors, distributors, fall dormancy, disease resistance, and yield performance across years and locations for all the varieties currently included in the Kentucky Alfalfa Variety Tests. In this table, 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. Some varieties, such as Aggressor, Buffalo, Saranac AR and Wampr, have been sown in every test; others, however, such as 2833, DK-125, Legend, and WL 323, have been included in only one 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. It is best to choose a variety that has performed well over several years and locations as indicated by the asterisks. Make sure seed of the variety is properly labelled and will be available when needed.

### Summary

Consistent production of high yields of alfalfa is the result of good variety selection along with the implementation of good management techniques. Soil fertility should be maintained at recommended levels based on soil tests, and pests such as weeds, alfalfa weevil, and potato leafhopper should be controlled using the appropriate cultural and/or chemical methods. Harvesting established stands at the appropriate stage of maturity will produce four to five cuttings annually in Kentucky before mid-September. For further information about alfalfa management, refer to the University of Kentucky Extension publications listed in Table 9. These publications are available at the local county extension office.

TABLE 1. TEMPERATURE AND RAINFALL IN LEXINGTON, BOWLING GREEN, AND PRINCETON DURING 1993.

		LEXINGTON				BOWLING GREEN				PRINCETON	
		TEMPERATURE		RAINFALL		TEMPERATURE		RAINFALL		TEMPERATURE	
MONTH	F	DEP.	INCHES	DEP.	F	DEP.	INCHES	DEP.	F	DEP.	
	INCHES	DEP.									
JAN	38	7	2.95	-0.62	39	5	2.81	-1.78	39	5	
	4.75	0.22									
FEB	33	-2	4.04	0.78	36	-2	3.06	-0.92	37	-1	
	3.75	-0.16									
MAR	41	-3	4.15	-0.68	45	-1	3.74	-1.78	46	-1	
	4.35	-0.70									
APR	53	-2	3.26	-0.75	55	-2	2.57	-1.61	57	-2	
	4.66	0.05									
MAY	65	1	2.48	-1.75	67	1	2.89	-1.27	66	-1	
	5.09	0.84									
JUN	72	0	6.48	2.23	75	0	2.65	-1.88	75	0	
	4.54	1.16									
JUL	79	3	3.17	-1.78	82	4	3.32	-1.01	83	5	
	2.22	-1.68									
AUG	76	1	4.65	0.69	80	3	1.06	-2.27	80	3	
	1.71	-1.89									
SEP	66	-2	3.72	0.44	69	-1	4.31	1.13	69	-2	
	4.53	1.23									
OCT	54	-2	4.08	1.82	57	-1	3.11	0.09	58	-2	
	3.72	0.40									

TEMPERATURES ARE IN DEGREES FAHRENHEIT.

DEP. IS DEPARTURE FROM THE 30-YEAR AVERAGE FOR THAT LOCATION.

TABLE 2. DRY MATTER YIELDS (TONS/ACRE) OF ALFALFA VARIETIES SOWN 18 MAY 1990 AT LEXINGTON, KENTUCKY.

VARIETY	1990	1991	1992	1993 HARVESTS					1993	4-YR
	TOTAL	TOTAL	TOTAL	MAY08	JUN08	JUL13	AUG09	SEP14	TOTAL	TOTAL
GARST630	2.66*	8.40*	3.11*	1.25*	0.63*	1.67*	0.58**	0.80*	4.92*	19.09**
ARROW	2.68*	8.16*	2.83*	1.19*	0.57*	1.73**	0.57*	0.89**	4.95**	18.62*
IMPACT	2.73*	8.21*	2.94*	0.99*	0.55*	1.65*	0.51*	0.79*	4.49*	18.37*
DAWN	2.62*	7.69*	3.24**	1.28**	0.63*	1.66*	0.42	0.76*	4.74*	18.29*
WAMPR	2.79**	8.19*	2.90*	0.87*	0.65**	1.55*	0.46*	0.74*	4.28*	18.15*
AGGRESSOR	2.79**	7.51	3.05*	0.88*	0.61*	1.68*	0.52*	0.75*	4.45*	17.80*
DART	2.62*	7.96*	2.95*	0.84*	0.57*	1.56*	0.50*	0.70*	4.18*	17.70*
MAJESTIC	2.60*	7.75*	2.86*	1.15*	0.59*	1.49*	0.48*	0.64	4.36*	17.57*
BUFFALO	2.61*	7.65*	2.75*	1.00*	0.56*	1.67*	0.47*	0.71*	4.41*	17.41*
APOLLO-SUPREME	2.76*	7.56	2.76*	1.00*	0.54*	1.48*	0.40	0.83*	4.25*	17.33*
DK-135	2.71*	8.45**	2.72	0.64	0.42	1.35	0.39	0.65	3.45	17.33*
5472	2.69*	7.50	2.70	0.97*	0.55*	1.54*	0.54*	0.69*	4.30*	17.18*
TOP-TON	2.53*	7.77*	2.77*	0.99*	0.53*	1.44	0.39	0.64	3.99	17.07*
5373	2.60*	7.53	2.63	0.98*	0.58*	1.40	0.49*	0.80*	4.26*	17.02*
ASSET	2.69*	7.45	2.76*	1.04*	0.49*	1.49*	0.43*	0.62	4.07*	16.96
ALFAGRAZE	2.57*	7.31	2.94*	0.91*	0.49*	1.57*	0.41	0.75*	4.12*	16.94
B-54	2.62*	7.67*	2.91*	0.78	0.38	1.41	0.43*	0.73*	3.73	16.93
RESISTAR	2.51*	7.86*	2.62	0.70	0.43	1.44	0.43*	0.81*	3.82	16.82
ANSTAR	2.67*	7.66*	2.47	0.74	0.42	1.66*	0.52*	0.67	4.01	16.81
WL317	2.68*	7.36	2.53	0.96*	0.51*	1.51*	0.48*	0.67	4.12*	16.69
VOYAGER	2.57*	7.48	2.53	0.86*	0.57*	1.41	0.46*	0.77*	4.07*	16.65
WL320	2.70*	7.35	2.58	0.89*	0.55*	1.44	0.40	0.71*	4.00	16.64
SABRE	2.55*	7.42	2.77*	0.86*	0.50*	1.47*	0.39	0.59	3.81	16.55
BELMONT	2.63*	7.45	2.58	0.83*	0.44	1.47*	0.36	0.60	3.70	16.34
83T27	2.63*	7.40	2.44	0.66	0.42	1.45	0.46*	0.81*	3.80	16.26
CIMARRON-VR	2.73*	7.79*	2.32	0.70	0.42	1.28	0.36	0.62	3.38	16.22
2852	2.71*	7.47	2.30	0.65	0.48*	1.32	0.50*	0.66	3.61	16.09
EXCALIBUR	2.64*	7.71*	2.37	0.86*	0.38	1.15	0.38	0.54	3.31	16.02
89-128	2.75*	6.83	2.43	0.91*	0.55*	1.42	0.38	0.74*	3.99	15.98
LIBERTY	2.72*	6.90	2.24	0.72	0.42	1.41	0.44*	0.66	3.66	15.52
WL225	2.56*	7.06	2.30	0.72	0.37	1.35	0.45*	0.69*	3.58	15.50
SARANAC-AR	2.78*	7.13	2.19	0.55	0.36	1.13	0.36	0.55	2.95	15.05
VS481	2.50*	6.87	2.08	0.66	0.40	1.32	0.38	0.69*	3.44	14.89
HAYMARK	2.36	6.70	2.08	0.77	0.38	1.43	0.35	0.63	3.56	14.71
MULTIKING-I	2.38	6.56	2.15	0.53	0.33	1.30	0.40	0.57	3.13	14.21
MEAN	2.64	7.54	2.62	0.87	0.49	1.47	0.44	0.70	3.97	16.76
C.V., %	8.80	7.78	14.63	37.70	26.05	13.40	26.57	22.35	15.95	8.92
L.S.D., 5%	0.33	0.82	0.54	0.46	0.18	0.28	0.16	0.22	0.89	2.10

1990 TOTAL INCLUDES 2 HARVESTS DATED AUG03 AND SEP11.

1991 TOTAL INCLUDES 5 HARVESTS DATED MAY15, JUN18, JUL23, AUG27, AND OCT29.

1992 TOTAL INCLUDES 3 HARVESTS DATED MAY11, JUN16, AND JUL14.

\*\*HIGHEST NUMERICAL YIELD IN THE COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL YIELD IN THE COLUMN BASED ON THE L.S.D.

TABLE 3. DRY MATTER YIELDS (TONS/ACRE) OF ALFALFA VARIETIES SOWN 11 APR 1991 AT LEXINGTON, KENTUCKY.

VARIETY	1991	1992	1993 HARVESTS						1993	3-YR
	TOTAL	TOTAL	MAY08	JUN07	JUL12	AUG09	SEP14	OCT27	TOTAL	TOTAL
ABI-9043	2.57*	5.84	1.82**	0.76**	1.57*	0.65*	2.05*	0.23	7.09*	15.49**
2833	2.68*	6.70**	1.14	0.48	1.36	0.57	2.18*	0.25	5.99	15.38*
MULTISTAR	2.52*	6.05	1.44*	0.60*	1.55*	0.62*	2.26*	0.34*	6.80*	15.37*
DAWN	2.47*	5.39	1.65*	0.65*	1.52*	0.81**	2.44**	0.35*	7.42**	15.27*
AP-8843	2.64*	5.73	1.49*	0.66*	1.56*	0.71*	2.14*	0.31*	6.86*	15.23*
WL320	2.64*	5.79	1.24	0.59*	1.44	0.75*	2.17*	0.44**	6.64*	15.07*
APOLLO-SUPREME	2.76	5.67	1.41*	0.66*	1.50*	0.66*	2.12*	0.28*	6.64*	15.06*
UN-72	2.68*	5.81	1.42*	0.57	1.43	0.52	2.20*	0.36*	6.51*	15.00*
GARST645	2.22	5.98	1.48*	0.62*	1.56*	0.68*	2.18*	0.18	6.71*	14.91*
AGRIMATE	2.77**	5.11	1.32	0.64*	1.59*	0.77*	2.24*	0.37*	6.93*	14.81*
LEGACY	2.62*	5.68	1.53*	0.61*	1.42	0.54	2.12*	0.27	6.50*	14.80*
DK-125	2.51*	5.56	1.61*	0.70*	1.56*	0.61*	1.92*	0.31*	6.71*	14.77*
AGGRESSOR	2.57*	5.39	1.40*	0.68*	1.41	0.70*	2.32*	0.28*	6.79*	14.76*
CROWN-II	2.37*	5.87	1.43*	0.59*	1.42	0.63*	2.05*	0.27	6.39*	14.63*
WAMPR	2.57*	5.41	1.45*	0.67*	1.52*	0.56	2.13*	0.28*	6.61*	14.58*
VENTURE	2.49*	5.47	1.29	0.74*	1.66**	0.61*	1.98*	0.26	6.54*	14.50*
TERMNATOR	2.23	5.22	1.24	0.55	1.39	0.68*	2.32*	0.37*	6.54*	13.99*
WL322HQ	2.18	5.45	1.67*	0.69*	1.29	0.57	1.89	0.24	6.35*	13.99*
AS-G	2.33	5.15	1.44*	0.62*	1.49*	0.54	2.13*	0.24	6.47*	13.95*
LIBERTY	2.70*	4.95	1.27	0.45	1.34	0.67*	2.05*	0.38*	6.17	13.82
BUFFALO	2.41*	5.33	1.15	0.65*	1.41	0.56	1.90	0.24	5.91	13.66
AS-BD	2.37*	5.22	1.31	0.49	1.32	0.57	2.03*	0.32*	6.05	13.65
WL317	2.44*	4.99	1.17	0.57	1.39	0.56	1.89	0.22	5.80	13.23
SARANAC-AR	2.28*	4.78	1.23	0.55	1.39	0.57	1.93*	0.25	5.92	12.97
MEAN	2.05	5.52	1.40	0.62	1.46	0.63	2.11	0.29	6.51	14.54
C.V., %	14.90	10.59	21.91	18.19	9.30	24.94	17.96	39.98	11.75	7.59
L.S.D., 0.05	0.53	0.34	0.43	0.16	0.19	0.22	0.53	0.17	1.08	1.56

1991 TOTAL INCLUDES 4 HARVESTS DATED JUL10, AUG05, SEP09, AND OCT31.

1992 TOTAL INCLUDES 5 HARVESTS DATED MAY11, JUN15, JUL14, AUG13, AND SEP17.

\*\*HIGHEST NUMERICAL YIELD IN THE COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL YIELD IN THE COLUMN BASED ON THE 5% L.S.D.

TABLE 4. DRY MATTER YIELDS (TONS/ACRE) OF ALFALFA VARIETIES SOWN 13 APR 1990 AT BOWLING GREEN, KENTUCKY.

VARIETY	1990	1991	1992	1993 HARVESTS						1993	4-YR
	TOTAL	TOTAL	TOTAL	MAY13	JUN09	JUL14	AUG11	SEP16	OCT25	TOTAL	TOTAL
AGGRESSOR	4.93*	7.24*	5.05*	1.42*	1.19**	1.46*	1.06*	0.79*	0.37	6.28**	23.50**
MAGNUM-III	4.57*	7.30**	5.19*	1.17*	1.12*	1.41*	1.09*	0.90**	0.45*	6.13*	23.20*
GARST630	4.50*	7.18*	4.85*	1.23*	1.11*	1.48*	1.03*	0.79*	0.50**	6.14*	22.67*
5472	4.31	7.08*	4.90*	1.36*	1.12*	1.50**	1.13**	0.68	0.39	6.17*	22.67*
DART	4.80*	6.96*	5.05*	1.13	1.04*	1.40*	0.97	0.69	0.32	5.55	22.36*
ALFAGRAZE	4.50*	7.20*	5.07*	1.17*	1.04*	1.27	1.05*	0.73	0.26	5.53	22.30*
B-54	4.86*	6.71	4.98*	1.10	1.03	1.46*	1.02*	0.69	0.34	5.65	22.20*
ASSET	5.09**	7.19*	4.51	0.93	0.95	1.30	1.02*	0.78*	0.36	5.33	22.11*
5373	4.54*	6.76*	4.89*	1.43**	1.05*	1.32*	1.02*	0.71	0.39	5.93*	22.11*
WL225	4.93*	7.16*	4.61	1.08	0.99	1.33*	0.99	0.69	0.30	5.38	22.08*
DAWN	4.43	6.79*	5.21**	1.18*	1.05*	1.30	1.01*	0.71	0.33	5.58	22.01*
CROCKETT	4.78*	7.09*	4.69	0.97	0.95	1.33*	1.00*	0.74	0.40	5.39	21.95*
APOLLO-SUPREME	4.55*	6.98*	4.73	1.08	0.96	1.32*	1.12*	0.80*	0.33	5.61	21.86
SABRE	4.72*	6.76*	4.69	1.38*	1.03	1.36*	0.95	0.63	0.27	5.62	21.79
MAJESTIC	4.69*	6.90*	4.75	1.15*	1.00	1.27	0.97	0.71	0.30	5.41	21.76
WL320	4.87*	6.98*	4.32	1.08	0.87	1.41*	0.97	0.69	0.35	5.36	21.53
ARROW	4.17	7.03*	4.80	1.07	1.08*	1.27	0.97	0.73	0.34	5.46	21.46
89-128	4.49*	7.01*	4.50	1.04	0.90	1.36*	1.01*	0.66	0.39	5.35	21.35
WL317	4.58*	6.82*	4.32	1.05	0.82	1.30	1.02*	0.75	0.38	5.31	21.03
CIMARRON-VR	4.95*	6.66	4.31	1.12	0.78	1.27	0.94	0.61	0.26	4.98	20.90
2852	4.79*	6.95*	4.11	0.86	0.80	1.27	0.91	0.72	0.35	4.92	20.77
VS633	4.52*	7.02*	4.25	0.90	0.82	1.25	0.95	0.66	0.35	4.94	20.73
HAYMARK	4.64*	6.46	4.19	1.30*	0.88	1.34*	0.94	0.71	0.27	5.43	20.72
BELMONT	4.43	6.60	4.53	1.17*	0.94	1.26	0.85	0.61	0.32	5.15	20.71
WAMPR	4.19	6.94*	4.63	1.08	0.90	1.16	0.86	0.62	0.28	4.92	20.68
RESISTAR	4.04	6.66	4.56	1.16*	0.96	1.27	0.91	0.67	0.31	5.29	20.54
LIBERTY	4.27	6.73	4.24	1.14*	0.85	1.29	1.00*	0.69	0.27	5.24	20.48
ANSTAR	4.36	6.48	4.33	1.29*	0.92	1.15	0.96	0.67	0.26	5.25	20.42
BUFFALO	3.88	6.26	4.26	1.05	0.89	1.23	0.92	0.76	0.31	5.16	19.55
EXCALIBUR	4.79*	6.66	3.56	0.83	0.73	1.11	0.88	0.58	0.23	4.35	19.36
SARANAC-AR	4.42	6.55	4.00	0.87	0.71	1.12	0.86	0.56	0.15	4.26	19.23
MULTIKING-I	3.70	6.22	4.49	1.10	0.82	1.08	0.86	0.57	0.19	4.62	19.03
MEAN	4.54	6.85	4.58	1.12	0.95	1.30	0.98	0.70	0.32	5.37	21.34
C.V., %	9.81	5.94	5.91	19.32	11.83	11.01	10.18	14.51	21.51	8.32	5.20
L.S.D., 0.05	0.63	0.57	0.38	0.30	0.16	0.20	0.14	0.14	0.10	0.63	1.56

1990 TOTAL INCLUDES 4 HARVESTS DATED JUN26, AUG10, SEP06, AND OCT30.

1991 TOTAL INCLUDES 6 HARVESTS DATED MAY02, JUN05, JUL11, AUG16, SEP12, AND OCT30.

1992 TOTAL INCLUDES 5 HARVESTS DATED MAY14, JUN17, AUG10, AND SEP11.

\*\*HIGHEST NUMERICAL YIELD IN THE COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL YIELD IN THE COLUMN BASED ON THE 5% L.S.D.



TABLE 5. DRY MATTER YIELDS (TONS/ACRE) OF ALFALFA VARIETIES SOWN 14 APR  
1992  
AT BOWLING GREEN, KENTUCKY.

VARIETY	1992	1993 HARVESTS					1993	2-YR
	TOTAL	MAY12	JUN09	JUL14	AUG11	OCT25	TOTAL	TOTAL
LEGACY	4.47*	1.87*	1.26*	1.20**	1.16**	0.46*	5.95**	10.42**
APOLLO-SUPREME	4.80**	1.71	1.27*	1.08*	1.10*	0.40*	5.56*	10.36*
MAGNUM-III	4.36*	1.83*	1.23*	1.01*	1.12*	0.43*	5.63*	9.98*
MULTISTAR	4.39*	2.07**	1.25*	0.91	0.88*	0.45*	5.56*	9.95*
5373	4.24*	1.65	1.29*	1.05*	0.98*	0.47**	5.44*	9.68*
AGGRESSOR	4.03*	1.79*	1.23*	1.09*	1.01*	0.45*	5.57*	9.60*
ZENITH	4.03*	1.89*	1.20*	1.11*	0.90*	0.44*	5.55*	9.58*
CIMARRON-VR	4.22*	1.69*	1.11	1.07*	0.95*	0.44*	5.25*	9.48*
WEBFOOT-MPR	4.06*	1.74*	1.25*	1.10*	0.96*	0.36	5.40*	9.46*
89-30	4.37*	1.62	1.11	1.00*	0.87*	0.43*	5.02	9.39*
2852	4.15*	1.78*	1.13	1.09*	0.81*	0.38*	5.18*	9.34*
DK133	4.12*	1.63	1.17*	1.00*	0.87*	0.41*	5.08	9.19
MULTIKING-I	4.30*	1.86*	1.10	0.83	0.76	0.33	4.88	9.18
ASSET	3.61	1.81*	1.25*	1.13*	0.92*	0.41*	5.51*	9.12
DAWN	3.83	1.89*	1.23*	0.89	0.90*	0.35	5.27*	9.09
GARST630	3.60	1.64	1.30*	1.03*	1.07*	0.42*	5.46*	9.07
5454	3.39	1.76*	1.34**	1.12*	0.95*	0.46*	5.64*	9.03
SARANAC-AR	4.33*	1.72	1.12	0.76	0.74	0.32	4.67	8.99
CROWN-II	3.76	1.79*	1.27*	0.92	0.71	0.33	5.01	8.77
A9008	3.60	1.84*	1.24*	0.92	0.80*	0.35	5.15	8.75
CF-EDGE	3.78	1.72	1.21*	0.94	0.76	0.34	4.98	8.75
FORTRESS	3.54	1.69	1.15	1.04*	0.93*	0.40*	5.21*	8.75
WAMPR	3.48	1.62	1.15	1.00*	0.96*	0.41*	5.14	8.62
STINE-9227	3.87	1.53	1.18*	0.87	0.72	0.32	4.62	8.49
DART	3.45	1.64	1.21*	0.97	0.85*	0.36	5.04	8.49
RESISTAR	3.75	1.64	1.14	0.93	0.65	0.35	4.71	8.46
WL322HQ	3.70	1.62	1.08	0.91	0.80*	0.34	4.75	8.45
DOMINATOR	3.83	1.66	1.05	0.82	0.68	0.40*	4.60	8.43
TRIDENT	3.51	1.66	1.22*	0.85	0.69	0.33	4.74	8.25
BUFFALO	3.40	1.44	1.06	0.93	1.02*	0.27	4.72	8.12
ARC	3.55	1.45	0.92	0.77	0.63	0.27	4.04	7.60
MEAN	3.92	1.72	1.18	0.98	0.88	0.38	5.14	9.06
C.V., %	14.92	14.44	10.81	16.14	30.16	20.63	10.91	9.24
L.S.D., 0.05	0.82	0.35	0.18	0.22	0.37	0.11	0.79	1.18

1992 TOTAL INCLUDES 3 HARVESTS DATED JUL15, AUG10, AND SEP11.

\*\*HIGHEST NUMERICAL YIELD IN THE COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL YIELD IN THE COLUMN BASED ON THE 5% L.S.D.

TABLE 6. DRY MATTER YIELDS (TONS/ACRE) OF ALFALFA VARIETIES SOWN 22 AUG 1990 AT PRINCETON, KENTUCKY.

VARIETY	1991	1992	1993 HARVESTS						1993	3-YR
	TOTAL	TOTAL	MAY12	JUN10	JUL15	AUG12	SEP15	OCT27	TOTAL	TOTAL
RESISTAR	5.61**	4.63**	1.29*	0.80	1.52	0.39*	0.59*	0.37*	4.96*	15.19**
GARST630	5.09*	4.46*	1.40*	1.03**	1.62*	0.49**	0.62**	0.47**	5.63**	15.18*
5472	5.14*	4.41*	1.31*	0.92*	1.52	0.40*	0.54*	0.41*	5.10*	14.65*
2852	4.98*	4.49*	1.52**	0.76	1.61*	0.39*	0.50*	0.32	5.11*	14.57*
ASSET	5.38*	4.48*	1.07*	0.73	1.60*	0.36	0.48*	0.35	4.59*	14.45*
ARROW	5.10*	4.34*	1.25*	0.84*	1.54	0.41*	0.53*	0.31	4.88*	14.32*
WAMPR	5.00*	4.44*	1.21*	0.88*	1.37	0.38*	0.48*	0.35	4.67*	14.12*
CIMARRON-VR	5.16*	4.24*	1.24*	0.70	1.63*	0.34	0.49*	0.28	4.69*	14.09*
AGGRESSOR	4.96*	4.40*	1.24*	0.84*	1.35	0.35	0.52*	0.35	4.66*	14.02*
WL317	4.60	4.36*	1.26*	0.70	1.92**	0.37	0.49*	0.30	5.04*	13.99*
ANSTAR	5.08*	4.32*	1.10*	0.73	1.58*	0.36	0.53*	0.28	4.58*	13.97*
ALFAGRAZE	4.29	4.50*	1.29*	0.81	1.63*	0.38*	0.48*	0.17	4.76*	13.55*
MAJESTIC	4.96*	4.13*	1.21*	0.76	1.39	0.37	0.45	0.23	4.42	13.51*
WL225	4.96*	3.98*	1.15*	0.77	1.39	0.35	0.52*	0.32	4.50	13.44*
BUFFALO	4.67	4.08*	1.08*	0.76	1.29	0.39*	0.56*	0.35	4.42	13.17*
DAWN	4.71	4.03*	1.12*	0.72	1.52	0.33	0.50*	0.23	4.42	13.16*
5373	4.79*	3.98*	1.28*	0.75	1.33	0.30	0.42	0.31	4.39	13.16*
APOLLO-SUPREME	4.61	3.99*	1.13*	0.77	1.23	0.37	0.47*	0.28	4.24	12.84*
WL320	4.77	3.63	1.08*	0.66	1.57	0.36	0.43	0.32	4.42	12.82*
DART	4.71	4.05*	0.96	0.68	1.34	0.33	0.41	0.27	3.98	12.75*
HAYMARK	4.89*	3.74	0.96	0.64	1.49	0.30	0.38	0.24	4.01	12.64
LIBERTY	4.15	4.01*	1.08	0.57	1.79*	0.31	0.42	0.25	4.41	12.56
83T27	4.33	3.95*	0.84*	0.74	1.42	0.35	0.49*	0.38*	4.21	12.49
B-54	4.32	3.87*	1.00	0.74	1.53	0.30	0.36	0.24	4.17	12.36
SARANAC-AR	4.68	3.80	1.00	0.52	1.44	0.25	0.39	0.17	3.77	12.25
BELMONT	4.50	3.63	1.10*	0.62	1.33	0.27	0.39	0.29	4.00	12.12
LEGEND	4.48	3.71	0.83	0.58	1.36	0.28	0.49*	0.24	3.77	11.97
SABRE	3.64	3.40	0.99	0.63	1.41	0.28	0.39	0.19	3.89	10.93
EXCALIBUR	4.55	3.17	0.51	0.28	1.32	0.22	0.33	0.13	2.79	10.51
MEAN	4.76	4.08	1.12	0.72	1.48	0.34	0.47	0.29	4.43	13.26
C.V., %	12.44	14.01	30.23	21.82	17.04	24.64	25.30	30.93	17.52	13.02
L.S.D., 0.05	0.83	0.80	0.48	0.22	0.36	0.12	0.17	0.12	1.09	2.45

1991 TOTAL INCLUDES 5 HARVESTS DATED MAY02, JUN16, JUL10, AUG14, AND SEP11.

1992 TOTAL INCLUDES 5 HARVESTS DATED MAY14, JUN18, JUL16, AUG12, AND SEP10.

\*\*HIGHEST NUMERICAL YIELD IN THE COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL YIELD IN THE COLUMN BASED ON THE 5%

L.S.D.

TABLE 7. DRY MATTER YIELDS (TONS/ACRE)  
OF  
ALFALFA VARIETIES SOWN 23 APR 1993 AT  
PRINCETON, KENTUCKY.

VARIETY	1993 HARVESTS		1993
	JUL15	OCT26	TOTAL
AS-BG	1.01*	0.48**	1.49**
ZENITH	1.06**	0.42*	1.48*
MULTIKING-I	1.06**	0.37*	1.43*
GA-AG-MP	1.00*	0.40*	1.40*
APOLLO-SUPREME	0.98*	0.38*	1.36*
FORTRESS	0.93*	0.42*	1.35*
ARCHER	0.88*	0.46*	1.34*
CRYSTAL	0.91*	0.38*	1.29*
LEGACY	0.83*	0.45*	1.28*
SARANAC-AR	0.90*	0.33	1.23*
ICI631	0.88*	0.35	1.23*
ARC	0.87*	0.33	1.20*
A9109	0.83*	0.35	1.18*
AGGRESSOR	0.77*	0.39*	1.16*
GA-AG-MP1	0.88*	0.26	1.14*
ICI645	0.80*	0.32	1.12*
2852	0.74*	0.37*	1.12*
5454	0.77*	0.34	1.11*
DAWN	0.76*	0.34	1.09*
DART	0.74*	0.35	1.09*
DOMINATOR	0.73*	0.36	1.09*
BUFFALO	0.78*	0.30	1.09*
WL323	0.71	0.38*	1.09*
5373	0.76*	0.33	1.08*
MULTISTAR	0.77*	0.31	1.08*
WAMPR	0.68	0.40*	1.07*
GA-AG-MPG	0.76*	0.27	1.03
RESISTAR	0.69	0.33	1.02
DK-133	0.64	0.36	1.00
MEAN	0.83	0.36	1.19
C.V., %	29.54	23.05	25.58
L.S.D., 0.05	0.34	0.12	0.43


\*\*HIGHEST NUMERICAL YIELD IN THE  
COLUMN.

\*NOT SIGNIFICANTLY DIFFERENT FROM THE  
HIGHEST NUMERICAL YIELD IN THE COLUMN  
BASED ON THE 5% L.S.D.



Crown II	Cargill	3	HR	HR	HR	HR				*	*										
Crystal	Mike Brayton Seeds	4	HR	HR	R	HR															*
Dart	AgriPro	3	HR	HR	R	HR	*	*	*	*			*	*	*				*	*	*
Dawn	AgriPro	3	R	HR	R	R	*	*	**	*	*	**		*	*	*		*	*	*	
DK-125	Dekalb Plant Gen.	3	HR	R	HR	R				*	*										
DK-133	Dekalb Plant Gen.	4	HR	HR	HR	HR								*							
DK-135	DeKalb Plant Gen.	3	R	R	MR	MR	*	**	*												
Dominator	ABI/AgriPro	4	HR	HR	HR	HR															*
Excalibur	Vista/Agway	4	R	HR	MR	LR	*	*					*								
Fortress	Northrup King	3	R	R	R	HR									*						*
GA-AG-MP	GA Agric. Exp. Sta.	-	-	-	-	-															*
GA-AG-MP1	GA Agric. Exp. Sta.	-	-	-	-	-															*
GA-AG-MPG	GA Agric. Exp. Sta.	-	-	-	-	-															
Garst 630	Garst Seed Co.	3	HR	HR	MR	R	*	*	*	*			*	*	*	*		*	*	**	
Haymark	FFR/Southern States	3	R	HR	HR	R							*					*			
ICI631	ICI Seeds	4	HR	HR	R	HR															*
ICI645	Garst Seed Co.	4	HR	R	HR	HR					*	*									*
Impact	Peterson Seed	3	HR	HR	MR	R	*	*	*	*											
Legacy	Genesis Group/Green Seed	4	R	R	R	R				*	*			*	**						*
Legend	Vista/Scott Seed, Allied Seed	4	HR	HR	HR	HR															
Liberty	Public	5	S	-	R	S	*			*									*		
Magnum III	Dairyland	4	R	R	MR	R							*	**	*	*	*	*			
Majestic	Allied Seed/Scott Seed, Allied Seed	4	HR	HR	HR	R	*	*	*	*			*	*				*	*		
MultiKing I	Northrup King	3	HR	MR	HR	R								*							*
Multistar	FFR/Southern States	3	HR	HR	HR	HR				*	*	*			*	*					*
Resistar	FFR/Southern States	4	HR	HR	HR	HR	*	*									**	**	*		
Sabre	Allied Seed/Scott Seed, Allied Seed	4	HR	HR	HR	R	*		*				*	*							
Saranac AR	Public	4	MR	R	HR	LR	*			*				*							*
Stine 9227	Peterson Seed	4	HR	HR	HR	HR															
Terminator	Plant Genetics	4	HR	HR	R	R						*									
Top Ton	Super Crost/Ky. Nutrition Service	4	HR	HR	HR	R	*	*	*												
Trident	ABI/AgriPro	4	R	HR	MR	HR															
Un 72	Union Seed Co.	3	R	R	HR	HR				*	*										
Venture	ABI	4	HR	R	HR	HR				*	*										
Voyager	Bio-Plant Research/Caverndale Farms	4	HR	R	MR	R	*			*											
VS 481	Vista/Experimental	5	MR	HR	HR	MR	*														
VS 633	Vista/Experimental	4	R	HR	R	R							*	*							
Wampr	FFR/Southern States	4	R	R	R	R	**	*	*	*	*	*	*	*	*		*	*	*	*	*

Webfoot MPR	Mich. St. Univ./Great Lakes Hybrids	3	HR	HR	HR	HR												*	*						
WL 225	W-L Research/Geo. W. Hill	2	HR	HR	MR	HR	*							*	*						*	*			
WL 317	W-L Research/Geo. W. Hill	3	HR	HR	R	HR	*			*	*			*	*							*	*		
WL 320	W-L Research/Geo. W. Hill	4	R	HR	MR	R	*				*	*		*	*										
WL 322 HQ	W-L Research/Geo. W. Hill	4	HR	HR	MR	R						*													
WL323	W-L Research	4	HR	HR	HR	HR																			*
Zenith	Garst Seed Co.	3	HR	HR	HR	HR														*	*				*

<sup>1</sup> Variety Characteristics      <sup>3</sup> Disease Resistance      <sup>4</sup> Establishment Year      <sup>6</sup> Harvest Year  
 FD Fall Dormancy                      S Susceptible                      <sup>5</sup> Fall Dormancy       Variety was not in the test  
 BW Bacterial Wilt                      LR Low Resistance                      2 Vernal                      \*\* Highest yielding variety in the test for the year  
 FW Fusarium Wilt                      MR Moderate Resistance                      3 Ranger                      \* Not significantly different from the highest yielding variety  
 An Anthracnose                      R Resistance                      4 Saranac  
 PRR Phytophthora Root Rot                      HR High Resistance                      5 DuPuits

<sup>2</sup> The Bowling Green tests are on soils infested with Phytophthora and Aphanomyces root rot.

**Table 9. University of Kentucky agricultural extension publications related to alfalfa management.**

Publication	Title
AGR-76	Alfalfa: The queen of the forage crops
AGR-107	Alfalfa: Quality means profits
AGR-64	Establishing forage crops
-----	Seed tags: What they reveal
AGR-90	Inoculation of forage legumes
AGR-18	Grain and forage crop guide for Kentucky
AGR-1	1992-1993 Lime and fertilizer recommendations
AGR-148	Weed control strategies for alfalfa and other forage legume crops
ENT-17 (in)	1993 Insect management recommendations for field crops and livestock
PPA-10d	Kentucky plant disease management guide for forage legumes
PPA-28	Alfalfa varieties: Relative disease resistance and winter hardiness
AGR-137	Alfalfa hay: Quality makes the difference
ID-97	Grazing alfalfa

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