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UNIVERSITY OF KENTUCKY • COLLEGE OF AGRICULTURE

2000 Alfalfa 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. Choosing a good alfalfa variety is a key step in establishing a stand of alfalfa. The choice of variety can impact yield, thickness of stand, and persistence of alfalfa stands.

This report provides current yield data on alfalfa varieties included in yield trials in Kentucky as well as guidelines for selecting alfalfa varieties.

Considerations in Selecting an Alfalfa Variety

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 dor
mant) to 9 (non-dormant). In general, varieties with lower dormancy ratings take more warm weather in spring to initiate growth, and they stop growing sooner in the fall. This growth habit can, but does not necessarily, reduce annual yields compared to less dormant varieties. Generally alfalfa should have a fall dormancy rating of 2 to 5 to yield 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 phytophthora root rot (PRR), anthracnose (An), bacterial wilt (Bw), and fusarium wilt (Fw) as well as an "R" (resistance) rating to aphanomyces root rot (APH). Kentucky research indicates that aphanomyces root rot is a widespread problem in the state during stand establishment and that resistance is beneficial, particularly in soils also infested with phytophthora root rot.

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 top growth of infected plants appears stunted and yellow.

Anthracnose, 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 and 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.

Aphanomyces root rot is another fungal disease associated with poorly drained soils orexcessive rainfall. Affected seedlings will be stunted but remain upright, unlike symptoms of damping off. In established plants, root symptoms are not as well defined as those for phytophthora root rot, but brown lesions on the taproot indicate where lateral roots were destroyed. This disease can be associated with phytophthora root rot, and together they may form a root disease complex. Aphanomyces root rot is known to affect new seedings in Kentucky, but it is still unclear how it affects established alfalfa.

In years with overly cool and wet spring weather, alfalfa stands have suffered great damage due to aphanomyces when planted with varieties that are susceptible to this disease.

Although certain alfalfa varieties are reported to have some resistance to sclerotinia crown and stem rot, UK research has shown that these varieties often perform poorly against the disease under Kentucky conditions.

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 are reported in this publication or others like it. 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

Alfalfa variety tests were established at Lexington (1995, 1997, 1998, 1999, and 2000), Bowling Green (1996 and 1998), Princeton (1997 and 1999), and Eden Shale (1998) as part of the Forage Variety Testing Program. The soils at most locations are well suited to alfalfa in that they are generally well-drained silt loams (Maury, Pembroke, and Crider, at Lexington, Bowling Green, and Princeton, respectively). Eden Shale has a Nicholson silt loam soil. The Bowling Green tests are on

soils that are naturally infested with both phytophthora and aphanomyces root rot pathogens, and the 1997 seeding in Princeton was found to be infested with the aphanomyces pathogen.

Plots were 5 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. Plots were harvested with a sickle-type forage plot harvester. First cuttings in the seedling year were delayed to allow the alfalfa to completely reach maturity as indicated by full bloom. Otherwise, harvests were taken when the alfalfa was in the bud to early-flower stage. Fresh weight samples were taken at each harvest to calculate percent dry matter production. Management of all tests for establishment, fertility, pest control, and harvest management was according to University of Kentucky Cooperative Extension Service recommendations. Pests (weeds and insects) were controlled so that they would not limit yield or persistence.

Results and Discussion

Weather data for Bowling Green, Eden Shale, Lexington, and Princeton are presented in Table 1. Bowling Green had a dry summer while the other locations experienced close to normal temperature and precipitation.

Yield data (on a dry matter basis) for all tests are reported in Tables 2 through 13. 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 2000 and by year for each prior year of production.

Statistical analyses were performed on all alfalfa yield data (including experimentals) to determine if the apparent differences are truly due to variety. Varieties not significantly different from the highest numerical value in a column are marked with an asterisk (*). To determine if two varieties are truly different, compare the difference between the two varieties to 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.

Table 14 summarizes information about proprietors, distributors, fall dormancy, disease resistance, and yield performance across years and locations for all the varieties currently included in the tests discussed in this report. Varieties are listed in alphabetical order with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use, while commercial varieties can be purchased through dealerships. In Table 13, shaded areas indicate that the variety was not in that particular test (labeled at the top of the column), while white or unshaded blocks mean that the variety was in the test. A single asterisk (*) means that the variety was not significantly different from the top-yielding variety based on the 5% LSD. 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 labeled 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 these College of Agriculture publications. These publications are available at the local county Extension office.

AGR-76	Alfalfa: The Queen of the Forage Crops
AGR-107	Alfalfa: Quality Means Profits
AGR-64	Establishing Forage Crops
AGR-90	Inoculation of Forage Legumes
AGR-18	Grain and Forage Crop Guide for Kentucky
AGR-1	Lime and Fertilizer Recommendations
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
PPA-28	Alfalfa Varieties: Relative Disease Resistance and Winter Hardiness
AGR-137	Alfalfa Hay: Quality Makes the Difference

Table 1. Temperature and rainfall at Bowling Green, Eden Shale, Lexington, and Princeton in 2000.

	Bowling Green				Eden Shale				Lexington				Princeton			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
MON	˚F	DEP	IN	DEP	˚F	DEP	IN	DEP	˚F	DEP	IN	DEP	˚F	DEP	IN	DEP
JAN	36	+2	3.03	-0.79	28	-4	4.39	+1.80	32	+1	3.48	+0.62	38	+4	5.86	+2.06
FEB	45	+7	3.42	-0.71	40	+4	5.72	+3.03	43	+8	4.97	+1.76	47	+9	5.36	+0.93
MAR	51	+5	2.76	-2.34	47	+2	3.33	-0.91	48	+4	3.47	-0.93	54	+7	4.23	-0.71
APR	56	-2	4.71	+0.39	52	-4	4.44	+0.69	53	-2	4.10	+0.22	59	0	5.77	+0.97
MAY	68	+2	5.91	+0.97	66	+2	4.66	+0.38	67	+3	2.96	-1.51	70	+3	5.03	+0.07
JUN	75	0	1.40	-2.77	72	0	4.44	+0.60	73	+1	3.22	-0.44	76	+1	3.07	-0.78
JUL	78	0	1.79	-2.95	73	-3	3.53	-0.71	74	-2	3.42	-1.58	78	0	4.51	+0.22
AUG	78	+1	3.72	+0.21	73	-2	2.97	-0.38	74	-2	3.38	-0.55	80	+3	1.99	-2.02
SEP	69	-1	3.41	-0.31	65	-4	4.86	+1.98	66	-2	5.47	+2.27	71	0	4.13	+0.80
OCT	61	+3	0.65	-2.37	58	+1	1.37	-1.49	59	+2	0.92	-1.65	64	+5	1.15	-1.90
NOV	46	0	3.48	-0.95	42	-4	2.33	-1.13	43	-2	1.59	-1.80	47	0	4.01	-0.62

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

Table 2. Dry matter yields (tons/acre) of alfalfa varieties sown 6 September 1995 at Lexington, Kentucky.

Variety	Total 1996	Total 1997	Total 1998	Total 1999	2000 Harvests						Total 2000	5-yr Total
					Apr 26	Jun 9	Jul 12	Aug 14	Sep 15	Nov 15		
Commercial Varieties—Available for Farm Use												
DK 127	5.05*	4.41*	5.09*	3.86*	0.91	1.43*	1.07*	0.97*	0.58*	0.36*	5.32*	23.74*
Choice	4.54*	4.10*	5.01*	4.17*	1.07*	1.51*	1.23*	1.01*	0.59*	0.42*	5.83*	23.64*
Rushmore	5.25*	4.33*	4.69*	3.46*	0.96	1.33*	1.09*	1.01*	0.65*	0.40*	5.44*	23.17*
Excalibur II	4.54*	3.84*	4.93*	4.04*	0.95	1.40*	1.22*	1.03*	0.63*	0.36*	5.59*	22.93*
DK 133	4.33	3.82*	5.07*	3.77*	0.95	1.41*	1.08*	1.04*	0.62*	0.45*	5.54*	22.52*
Supercuts	4.35	3.66	4.93*	3.81*	1.04*	1.51*	1.20*	0.84	0.59*	0.39*	5.56*	22.32*
WL323	4.45*	4.09*	4.78*	3.67*	0.95	1.37*	1.13*	0.93*	0.53*	0.36*	5.28*	22.26*
Saranac-AR	4.12	3.84*	4.88*	3.75*	0.95	1.44*	1.19*	0.95*	0.59*	0.41*	5.52*	22.12*
Multiqueen	4.50*	4.12*	4.70*	3.26*	1.02*	1.39*	1.15*	0.93*	0.51	0.44*	5.44*	22.01
Dominator	4.03	3.68	4.94*	3.49*	1.03*	1.45*	1.13*	0.95*	0.56*	0.39*	5.51*	21.65*
Arc	4.35	3.35	4.24	3.46*	1.00	1.35*	1.11*	0.92*	0.55*	0.33	5.25*	20.66*
5454	4.36	3.55	4.43	3.11	0.81	1.26	0.98	0.90*	0.51	0.28	4.73	20.18
329	4.16	3.62	4.55	2.85	0.91	1.30	1.05*	0.84	0.52	0.27	4.89	20.06
Garst 630	3.31	3.15	4.35	2.96	0.91	1.33*	1.01	0.80	0.47	0.38	4.91	18.69
Legacy	4.13	3.01	4.03	2.55	0.80	1.20	0.92	0.83	0.49	0.27	4.51	18.24
Apollo	3.55	2.79	3.77	2.46	0.68	1.13	0.85	0.78	0.43	0.27	4.14	16.71
Experimental Varieties—Not Available for Farm Use												
ABI 9231	4.72*	3.80	5.01*	3.79*	1.06*	1.43*	1.08*	0.98*	0.64*	0.33	5.52*	22.84*
GA-APGC	4.49*	4.42*	4.91*	3.40*	1.18*	1.39*	1.10*	0.91*	0.54*	0.29	5.42*	22.64*
ZC 9346	3.96	4.15*	5.14*	2.91	1.05	1.37*	1.05*	0.90*	0.52	0.30	5.20*	21.36*
93 116	4.35	3.49	4.35	3.27*	0.85	1.37*	1.06*	0.84	0.47	0.32	4.90	20.37
GA-MX	3.73	2.74	3.90	2.85	0.73	1.16	0.80	0.73	0.47	0.31	4.19	17.41
Mean	4.3	3.71	4.65	3.38	0.94	1.36	1.07	0.91	0.55	0.35	5.18	21.22
CV, %	13.7	13.93	8.69	21.22	13.14	9.45	14.0	13.77	15.72	24.29	10.34	10.35
LSD, 0.05	0.83	0.73	0.57	1.01	0.18	0.18	0.21	0.18	0.12	0.12	0.76	3.11

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

Table 3. Dry matter yields (tons/acre) of alfalfa varieties sown 19 April 1996 at Bowling Green, Kentucky.										
					2000 Harvests					
Variety	Total 1996	Total 1997	Total 1998	Total 1999	May 17	Jun 23	Aug 3	Nov 27	Total 2000	5-yr Total
Commercial Varieties—Available for Farm Use										
WL 324	5.96*	3.75*	5.71*	5.91*	2.06*	1.99*	1.23*	0.39*	5.68*	27.01*
Imperial	5.33*	3.63*	5.28*	5.91*	2.00*	1.98*	1.24*	0.44*	5.68*	25.82*
TMF-Generation	5.22*	3.80*	5.45*	5.89*	1.92	1.91*	1.14*	0.33	5.31	25.68*
631	4.96	3.88*	5.24	5.69*	2.15*	2.07*	1.26*	0.41*	5.89*	25.66*
Affinity+z	5.26*	3.48*	5.55*	5.87*	2.03*	1.95*	1.11	0.40*	5.49*	25.65*
WL 252 HQ	5.05	3.39*	5.69*	6.01*	1.99*	1.96*	1.13	0.40*	5.49*	25.63*
Depend+EV	5.15	3.59*	5.48*	5.78*	1.94	2.04*	1.20*	0.38*	5.56*	25.57*
Supercuts	5.02	3.76*	5.18	5.75*	1.99*	2.04*	1.23*	0.43*	5.70*	25.42*
645	5.46*	3.54*	5.34*	5.56*	2.03*	1.92*	1.16*	0.34*	5.44	25.33
Choice	4.91	3.75*	5.49*	5.70*	2.02*	1.85	1.25*	0.35*	5.47*	25.32
Demand	5.21*	3.73*	5.24	5.54*	2.07*	1.90*	1.29*	0.32	5.58*	25.29
Gem	5.17	3.52*	5.56*	5.69*	1.91	1.89*	1.08	0.39*	5.27	25.20
DK 133	4.95	3.38*	5.64*	5.69*	1.94	1.90*	1.17*	0.35*	5.36	25.01
ABT 405	5.32*	3.51*	5.35*	5.55*	1.87	1.84	1.10	0.40*	5.20	24.94
Saranac-AR	5.27*	3.50*	5.22	5.49	1.95	1.98*	1.15*	0.36*	5.44	24.92
DK 127	4.92	3.35	5.22	5.71*	1.92	1.93*	1.28*	0.40*	5.53*	24.74
Innovator+Z	4.95	3.47*	5.33*	5.39	1.94	1.85	1.15*	0.44*	5.38	24.52
Fortress	5.30*	3.56*	4.84	5.40	1.81	1.93*	1.01	0.36*	5.11	24.21
WL 325 HQ	5.09	3.53*	5.05	5.56*	1.72	1.77	1.13	0.28	4.90	24.13
Rushmore	4.75	3.12	5.28*	5.37	1.79	1.83	1.38*	0.34*	5.35	23.86
Legacy	4.70	3.07	5.19	5.53	1.85	1.84	1.23*	0.37*	5.30	23.79
Apollo	5.16	2.88	5.24	5.30	1.80	1.69	1.27*	0.33*	5.10	23.67
Buffalo-B	5.27*	2.89	4.68	5.25	1.76	1.75	1.21*	0.33	5.04	23.14
Arc	5.00	2.93	4.57	4.82	1.77	1.79	1.17*	0.31	5.04	22.36
Buffalo-A	4.85	2.34	4.48	4.61	1.60	1.53	1.24*	0.24	4.60	20.88
Experimental Varieties—Not Available for Farm Use										
ZG9533	5.39*	3.34	5.18	5.63*	2.01*	1.98*	1.10	0.35*	5.44	24.98
ZG9543	4.88	3.46*	5.37*	5.76*	1.86	1.91*	1.26*	0.45*	5.48*	24.95
ZG9430	4.79	3.42*	5.28*	5.70*	1.90	1.95*	1.25*	0.39*	5.49*	24.68
ZG9530	5.09	3.42*	5.42*	5.32	1.91	1.91*	1.16*	0.36*	5.34	24.59
93116	5.57*	3.49*	5.21	5.27	1.62	1.78	1.26*	0.35*	5.00	24.55
A9107	4.99	3.66*	5.15	5.33	1.80	1.91*	1.22*	0.26	5.19	24.33
C106	4.60	3.22	5.30*	5.77*	1.88	1.92*	1.24*	0.36*	5.40	24.29
Mean	5.11	3.42	5.26	5.55	1.90	1.89	1.20	0.36	5.35	24.69
CV, %	10.63	10.45	6.22	6.22	6.81	6.63	14.36	23.3	5.63	4.74
LSD, 0.05	0.76	0.5	0.46	0.49	0.18	0.18	0.24	0.12	0.42	1.64
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.										

Table 4. Dry matter yields (tons/acre) of alfalfa varieties sown 15 April 1997 at Lexington, Kentucky.											
				2000 Harvests							
Variety	Total 1997	Total 1998	Total 1999	May 8	Jun 9	Jul 12	Aug 14	Sep 15	Nov 15	Total 2000	4-yr Total
Commercial Varieties—Available for Farm Use											
Stampede	2.20*	5.74	5.79*	1.74*	1.48*	1.27*	1.11*	0.63*	0.50*	6.74*	20.47*
Feast	2.11*	6.10*	5.68*	1.62*	1.53*	1.34*	1.14*	0.60	0.35	6.57*	20.46*
Haygrazer	2.40*	6.01*	5.43*	1.64*	1.45*	1.28*	1.15*	0.59	0.44	6.55*	20.40*
Amerigraze 401+Z	2.18*	5.97*	5.73*	1.64*	1.46*	1.23*	1.08*	0.60	0.44	6.45*	20.32*
WL326GZ	2.29*	5.80*	5.27*	1.69*	1.45*	1.31*	1.13*	0.56	0.45	6.59*	19.94*
ABT 405	2.25*	5.96*	5.31*	1.65*	1.42*	1.26*	1.04	0.54	0.40	6.31	19.83*
Saranac-AR	2.14*	5.75	5.51*	1.60	1.35	1.12	0.98	0.51	0.34	5.90	19.29*
Fortress	2.28*	5.62	5.36*	1.49	1.35	1.18	1.05	0.53	0.41	6.01	19.27
GrazeKing	2.19*	5.50	4.75	1.61*	1.34	1.11	1.05	0.56	0.48	6.14	18.59
AlfaGraze	1.91	5.29	4.91	1.60	1.36	1.22*	1.00	0.52	0.31	6.00	18.12
Apollo	1.94	5.31	4.78	1.43	1.25	1.15	1.03	0.57	0.37	5.80	17.83
Spredor-3	1.94	5.44	4.97	1.49	1.24	1.10	0.91	0.47	0.27	5.48	17.82
Arc	2.00	5.24	4.63	1.56	1.17	1.06	0.90	0.51	0.37	5.57	17.44
Experimental Varieties—Not Available for Farm Use											
Pioneer 94I05PL1	2.39*	5.78*	5.06	1.68*	1.50*	1.29*	1.18*	0.68*	0.58*	6.91*	20.13*
CAR9426	2.16*	5.82*	5.45*	1.64*	1.48*	1.28*	1.03	0.58	0.33	6.34	19.78*
A9508	2.36*	5.74	5.13*	1.62*	1.35	1.26*	1.04	0.58	0.45	6.30	19.53*
GA-APGC	2.07*	5.56	5.23*	1.67*	1.35	1.17	1.08*	0.53	0.30	6.11	18.97
W116	1.97	5.45	5.05	1.53	1.35	1.18	1.00	0.50	0.36	5.91	18.38
Mean	2.16	5.67	5.22	1.60	1.38	1.22	1.05	0.56	0.40	6.20	19.26
CV, %	11.79	4.13	8.98	5.93	6.99	7.03	8.18	9.36	15.02	5.41	4.48
LSD, 0.05	0.36	0.33	0.66	0.14	0.14	0.12	0.12	0.07	0.09	0.48	1.23
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.											

Table 5. Dry matter yields (tons/acre) of alfalfa varieties sown 18 April 1997 at Lexington, Kentucky.

Variety	Total 1997	Total 1998	Total 1999	2000 Harvests						Total 2000	4-yr Total
				May 8	Jun 9	Jul 12	Aug 14	Sep 15	Nov 15		
Commercial Varieties—Available for Farm Use											
Garst 631	2.51*	5.64*	4.54*	2.17	1.91*	2.22*	1.13*	0.63*	0.49*	8.55*	21.23*
Choice	2.57*	5.66*	4.73*	2.18	1.72	2.24*	1.08*	0.61*	0.41	8.24*	21.20*
DK 140	2.24*	5.76*	4.61*	2.01	1.80*	2.26*	1.14*	0.65*	0.46*	8.33*	20.94*
Wintergreen	1.99	5.58*	4.80*	2.23*	1.80*	2.27*	1.14*	0.60*	0.38	8.42*	20.80*
Cimarron-3i	2.26*	5.34	4.63*	2.41*	1.77*	2.13*	1.06*	0.59*	0.45*	8.40*	20.63*
WL 325 HQ	2.19*	5.46*	4.35	2.06	1.82*	2.37*	1.14*	0.64*	0.48*	8.51*	20.50*
ABT 405	1.88	5.53*	4.64*	2.23*	1.79*	2.26*	1.10*	0.58*	0.36	8.31*	20.36*
Gem	1.85	5.41*	4.82*	1.98	1.87*	2.26*	1.01	0.60*	0.42*	8.13*	20.21*
ABT 205	1.88	5.45*	4.60*	2.25*	1.77*	2.30*	1.06*	0.55*	0.32	8.26*	20.18*
DK 141	2.35*	5.57*	4.08	1.98	1.84*	2.11	1.13*	0.59*	0.42*	8.08*	20.08*
Affinity+Z	2.13*	5.55*	4.37	2.07	1.81*	2.20*	1.02*	0.55*	0.36	8.01*	20.05*
Cimarron-VR	2.58*	5.37	3.90	2.13	1.74	2.19*	1.05*	0.56*	0.44*	8.11*	19.97*
Fortress	2.14*	5.14	4.38	1.87	1.71	2.10	1.04*	0.59*	0.41	7.72	19.37
Saranac-AR	1.95	5.29	4.42	1.94	1.70	2.05	0.99	0.58*	0.42*	7.68	19.35
Arc	1.82	4.82	3.98	2.02	1.57	1.90	0.92	0.54	0.27	7.23	17.84
Experimental Varieties—Not Available for Farm Use											
C231	2.29*	5.43*	4.86*	2.25*	1.91*	2.31*	1.10*	0.62*	0.49*	8.67*	21.25*
ZB9546	1.89	5.48*	5.00*	1.88	1.88*	2.23*	1.13*	0.54	0.33	7.99*	20.37*
ZC9623S	1.73	5.72*	4.93*	2.06	1.73	2.08	1.01	0.52	0.33	7.73	20.11*
ZC9630S	1.81	5.41*	4.62*	2.06	1.80*	2.22*	1.05*	0.55*	0.24	7.92	19.76*
C106	1.71	5.02	4.07	2.09	1.96*	2.14*	1.03*	0.55*	0.45*	8.21*	19.00
Mean	2.09	5.43	4.52	2.09	1.80	2.19	1.07	0.58	0.40	8.13	20.16
CV, %	17.07	4.92	8.94	6.69	8.05	8.63	8.78	12.94	12.91	6.02	5.30
LSD, 0.05	0.51	0.38	0.57	0.20	0.20	0.27	0.13	0.11	0.07	0.69	1.51

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

Table 6. Dry matter yields (tons/acre) of alfalfa varieties sown 15 April 1997 at Princeton, Kentucky.

Variety	Total 1997	Total 1998	Total 1999	2000 Harvests				Total 2000	4-yr Total
				May 16	Jun 22	Jul 20	Aug 29		
Commercial Varieties—Available for Farm Use									
Choice	1.91*	5.07*	4.99*	1.42*	1.15*	0.64*	0.67	3.88*	15.85*
ABT 405	1.73*	5.01*	4.90*	1.39*	1.16*	0.66*	0.83*	4.04*	15.68*
Garst 631	1.65*	4.69*	4.98*	1.44*	1.14*	0.68*	0.77*	4.03*	15.35*
Rushmore	1.81*	4.79*	4.93*	1.30*	1.10	0.63*	0.78*	3.81	15.35*
Wintergreen	1.62*	4.88*	5.01*	1.37*	1.14*	0.63*	0.68	3.83*	15.35*
Feast	1.82*	4.63*	4.72*	1.35*	1.13*	0.68*	0.75*	3.90*	15.07*
Amerigraze 401+Z	1.50*	4.82*	4.79*	1.40*	1.12*	0.61	0.75*	3.87*	14.97*
WL 326 GZ	1.67*	4.69*	4.39*	1.35*	1.07	0.63*	0.71	3.76	14.52*
Gem	1.37*	4.84*	4.68*	1.29*	1.04	0.60	0.68	3.61	14.50*
Fortress	1.48*	4.70*	4.62*	1.28	1.02	0.54	0.68	3.52	14.32
ABT 205	1.50*	4.64*	4.56*	1.33*	1.08	0.60	0.60	3.62	14.31
WL 332 SR	1.64*	4.64*	4.55*	1.25	0.95	0.46	0.61	3.27	14.09
Arc	1.19	4.56*	4.52*	1.38*	1.01	0.59	0.68	3.66	13.92
Saranac-AR	1.22	4.37	4.66*	1.29*	0.95	0.55	0.56	3.36	13.62
Experimental Varieties—Not Available for Farm Use									
ZC9651	1.88*	5.09*	5.04*	1.41*	1.19*	0.73*	0.84*	4.17*	16.18*
Mean	1.60	4.76	4.76	1.35	1.08	0.62	0.71	3.76	14.87
CV, %	26.01	9.12	9.63	8.03	7.04	12.59	12.02	6.47	8.25
LSD, 0.05	0.59	0.62	0.65	0.16	0.11	0.11	0.12	0.35	1.75

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

Table 7. Dry matter yields (tons/acre) of alfalfa varieties resistant and susceptible to potato leafhopper with insecticide applied. Sown 5 May 1998 at Lexington, Kentucky.

Variety	Total 1998 [1]	Total 1999 [2]	2000 Harvests					Total [3] 2000	3-yr Total
			May 8	Jul 13	Aug 15	Sep 18	Nov 24		
Commercial Varieties—Available for Farm Use									
DK 131 HG	1.42*	4.49*	2.14*	2.56*	1.65*	1.55*	1.49*	9.39*	15.31*
Saranac-AR	1.51*	4.44*	2.26*	2.55*	1.69*	1.46*	1.40*	9.36*	15.30*
Cleansweep 100	1.66*	4.39*	2.06*	2.47*	1.65*	1.48*	1.35*	9.01*	15.06*
Choice	1.35	4.27*	2.10*	2.59*	1.59*	1.53*	1.48*	9.30*	14.92*
Amerigraze 401+Z	1.50*	4.03*	2.10*	2.48*	1.64*	1.55*	1.39*	9.14*	14.67*
Fortress	1.48*	4.10*	1.87*	2.34*	1.53*	1.41*	1.36*	8.51*	14.09*
Arrest	1.54*	3.99*	2.05*	2.30*	1.56*	1.38*	1.22*	8.51*	14.04*
LH3	1.28	4.00*	1.91*	2.14*	1.53*	1.37*	1.31*	8.26*	13.54*
Arc	1.36	3.66*	2.09*	2.24*	1.42*	1.43*	1.26*	8.44*	13.46*
Experimental Varieties—Not Available for Farm Use									
3R22	1.32	4.22*	2.14*	2.45*	1.50*	1.51*	1.32*	8.92*	14.47
Mean	1.44	4.16	2.07	2.41	1.57	1.47	1.36	8.88	14.49
CV,%	14.11	20.16	17.02	13.26	12.48	13.45	14.51	12.93	14.54
LSD, 0.05	0.3	1.22	0.51	0.46	0.29	0.29	0.29	1.67	3.06

* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.
[1] Varieties were treated with permethrin at 0.2 lb a.i./acre on July 24, 1998.
[2] Varieties were treated with permethrin at 0.2 lb a.i./acre on June 3, 1999.
[3] Varieties were treated with carbofuran at 0.75 lb a.i./acre on June 26, 2000.

Table 8. Dry matter yields (tons/acre) of alfalfa varieties resistant and susceptible to potato leafhopper without insecticide applied. Sown 5 May 1998 at Lexington, Kentucky.

Variety	Total 1998	Total 1999	2000 Harvests						Total 2000	3-yr Total
			May 8	Jun 9	Jul 13	Aug 14	Sep 18	Nov 24		
Commercial Varieties—Available for Farm Use										
Cleansweep 100	1.17*	4.15*	2.09*	1.80*	1.40*	1.37*	0.92*	0.42	8.00*	13.32*
Fortress	1.11*	4.13*	1.86	1.90*	1.40*	1.40*	0.94*	0.56*	8.06*	13.30*
Choice	0.92	4.14*	2.01*	1.88*	1.44*	1.35*	0.91*	0.54*	8.12*	13.17*
Saranac-AR	1.00*	4.01*	1.93	1.77*	1.41*	1.34*	0.85*	0.58*	7.88*	12.90*
Amerigraze 401+Z	1.14*	3.76*	1.87	1.82*	1.42*	1.33*	0.85*	0.54*	7.83*	12.73*
DK 131 HG	1.01*	3.94*	1.91	1.74*	1.34*	1.28	0.90*	0.47*	7.64*	12.59*
Arc	1.02*	3.92*	2.12*	1.70	1.29	1.25	0.85*	0.45*	7.64*	12.59*
Arrest	1.08*	3.89*	1.98*	1.65	1.36	1.29	0.86*	0.42	7.56	12.52*
LH3	1.01*	3.52	1.77	1.62	1.30	1.25	0.85*	0.55*	7.35	11.87
Experimental Varieties—Not Available for Farm Use										
3R22	0.94*	3.58	1.75	1.59	1.32	1.29*	0.85*	0.45*	7.25	11.77
Mean	1.04	3.90	1.93	1.75	1.37	1.31	0.88	0.50	7.73	12.68
CV,%	15.47	9.24	6.55	6.81	5.10	6.35	7.49	17.55	4.29	5.50
LSD, 0.05	0.23	0.52	0.18	0.17	0.10	0.12	0.10	0.13	0.48	1.01

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

Table 9. Dry matter yields (tons/acre) of alfalfa varieties sown 14 May 1998 at Bowling Green, Kentucky.								
Variety	Total 1998	Total 1999	2000 Harvests				Total 2000	3-yr Total
			May 17	Jun 23	Aug 4	Nov 28		
Commercial Varieties—Available for Farm Use								
DK 140	0.39*	4.77*	2.51*	1.99*	0.80*	0.10*	5.39*	10.56*
DK 141	0.37*	4.86*	2.50*	1.90*	0.80*	0.11*	5.30*	10.53*
Pasture Plus	0.29*	4.83*	2.48*	1.83*	0.74*	0.08	5.12*	10.24*
Cimmaron 3i	0.33*	4.70*	2.44*	1.82*	0.71*	0.11*	5.07*	10.10*
ABT 400 SCL	0.30*	4.52*	2.20	1.85*	0.69*	0.12*	4.85	9.67*
ABT 350	0.32*	4.54*	2.14	1.75	0.71*	0.14*	4.74	9.60*
Geneva	0.29*	4.53*	2.14	1.80*	0.73*	0.09*	4.76	9.58*
WL 326 GZ	0.28*	4.42*	2.26*	1.78	0.73*	0.09*	4.85	9.55*
Choice	0.27*	4.49*	2.28*	1.79*	0.63*	0.08	4.78	9.54*
Emperor	0.30*	4.50*	2.08	1.78	0.77*	0.10*	4.73	9.53*
ProGro	0.23	4.02	2.48*	1.81*	0.67*	0.07	5.03*	9.28
Baralfa 54	0.25	4.28*	2.15	1.71	0.72*	0.09*	4.67	9.20
Stellar	0.21	4.10	2.18	1.75	0.63*	0.07	4.63	8.93
GoldPlus	0.28*	4.15	2.12	1.75	0.54	0.09*	4.49	8.93
Saranac-AR	0.26	3.87	2.29*	1.75	0.53	0.12*	4.69	8.81
Certified Arc	0.19	3.91	2.33*	1.70	0.55	0.05	4.63	8.72
Vernal	0.20	3.65	2.27*	1.66	0.54	0.06	4.53	8.38
Experimental Varieties—Not Available for Farm Use								
C416	0.41*	4.64*	2.18	1.79*	0.76*	0.09*	4.83	9.88*
ZC9651	0.33*	4.34*	2.46*	1.91*	0.68*	0.09*	5.14*	9.81*
ZC9751A	0.23	4.39*	2.24	1.80*	0.72*	0.11*	4.87	9.49*
ZC9750A	0.25	4.35*	2.28*	1.80*	0.68*	0.10*	4.86	9.47
A9503	0.23	4.39*	2.30	1.79*	0.66*	0.09*	4.84	9.45
ZC9650	0.27*	4.19*	2.14	1.75	0.65*	0.09*	4.64	9.09
ZG9641	0.32*	4.27*	2.04	1.72	0.61*	0.10*	4.47	9.05
ZG9640	0.19	4.19*	2.03	1.81*	0.58*	0.08	4.49	8.87
Mean	0.28	4.35	2.26	1.79	0.67	0.09	4.82	9.45
CV,%	36.17	11.09	8.01	7.95	23.76	43.5	6.43	8.02
LSD, 0.05	0.14	0.68	0.25	0.20	0.23	0.06	0.44	1.07
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.								

Table 10. Dry matter yields (tons/acre) of alfalfa varieties sown 15 May 1988 at Eden Shale, Kentucky.								
			2000 Harvests					
Variety	Total 1998	Total 1999	May 22	Jun 29	Jul 26	Aug 14	Total 2000	3-yr Total
Commercial Varieties—Available for Farm Use								
Stampede	0.34*	4.85*	2.50*	1.85*	1.49*	0.82*	6.66*	11.84*
Gem	0.36*	4.95*	2.39*	1.63	1.37*	0.65*	6.04*	11.35*
DK 140	0.34*	4.69*	2.35*	1.65	1.49*	0.77*	6.27*	11.30*
Choice	0.38*	4.71*	2.46*	1.64	1.44*	0.65*	6.19*	11.29*
Amerigraze 401+Z	0.41*	4.64*	2.44*	1.66	1.39*	0.73*	6.23*	11.28*
ABT 350	0.37*	4.69*	2.35*	1.63	1.44*	0.68*	6.10*	11.16*
Wintergreen	0.37*	4.64*	2.60*	1.71*	1.25	0.58	6.15*	11.16*
Geneva	0.43*	4.72*	2.24*	1.69*	1.40*	0.66*	5.99*	11.14*
Grazeking	0.39*	4.45	2.47*	1.70*	1.38*	0.68*	6.24*	11.08*
Spredor-3	0.35*	4.56*	2.43*	1.67*	1.33*	0.74*	6.17*	11.08*
Saranac-AR	0.35*	4.69*	2.38*	1.68*	1.34*	0.62*	6.03*	11.07*
Baralfa	0.32	4.86*	2.15*	1.58	1.31	0.71*	5.75	10.93*
Haygrazer	0.33*	4.37	2.43*	1.70*	1.36*	0.72*	6.20*	10.90*
WL 326 GZ	0.33*	4.48*	2.31*	1.62	1.44*	0.70*	6.07*	10.88*
Alfagraze	0.34*	4.43	2.28*	1.57	1.36*	0.70*	5.92*	10.69
Fortress	0.35*	4.58*	2.37*	1.54	1.23	0.58	5.71	10.64
Cimarron-3i	0.30	4.24	2.35*	1.54	1.30*	0.82*	6.00*	10.55
Vernal	0.35*	4.49*	2.20*	1.53	1.25	0.67*	5.64	10.49
Arc	0.29	4.32	2.27*	1.50	1.11	0.50	5.38	9.99
Emperor	0.42*	4.40	1.13	1.64	1.35*	0.64*	4.76	9.58
Mean	0.36	4.59	2.31	1.64	1.35	0.68	5.98	10.92
CV,%	19.36	7.50	21.37	7.73	10.92	23.54	8.93	6.56
LSD, 0.05	0.10	0.49	0.70	0.18	0.21	0.23	0.76	1.01
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.								

Table 11. Dry matter yields (tons/acre) of alfalfa varieties sown 4 May 1999 at Lexington, Kentucky.									
		2000 Harvests							
Variety	Total 1999	May 8	Jun 9	Jul 13	Aug 14	Sep 15	Nov 15	Total 2000	2-yr Total
Commercial Varieties—Available for Farm Use									
DK 131 HG	1.17*	1.95*	1.36*	1.15*	1.13*	0.73*	0.44*	6.75*	7.92*
Ameriguard 302+Z	1.03	1.92*	1.29*	1.11*	1.07*	0.66*	0.47*	6.53*	7.55*
Cimarron-SR	1.09*	1.85	1.29*	1.10*	1.08*	0.63	0.47*	6.42*	7.51*
54H69	1.09*	1.90*	1.25*	1.10*	1.05*	0.66*	0.43*	6.40*	7.48*
Arc	1.04*	1.95*	1.23	1.03	1.03*	0.66*	0.44*	6.32	7.36
TMF 4355 LH	1.04*	1.87	1.22	1.11*	1.05*	0.65*	0.37	6.27	7.31
Saranac-AR	1.05*	1.91*	1.30*	1.07*	1.04*	0.63	0.31	6.26	7.31
LH4	1.01	1.93*	1.17	1.01	0.95	0.55	0.35	5.95	6.96
Experimental Varieties—Not Available for Farm Use									
ZH9841H	0.83	1.95*	1.23	1.13*	1.04*	0.65*	0.44*	6.44*	7.46*
3A30	0.83	2.01*	1.19	1.07*	1.02*	0.64	0.37	6.30	7.32
Mean	1.06	1.92	1.25	1.09	1.05	0.65	0.41	6.37	7.42
CV,%	12.66	7.21	10.26	9.65	10.87	13.50	18.83	6.89	7.15
LSD, 0.05	0.13	0.14	0.13	0.11	0.11	0.09	0.08	0.44	0.53
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.									

Table 12. Dry matter yields (tons/acre) of alfalfa varieties sown 13 April 1999 at Princeton, Kentucky.							
Variety	Total 1999	2000 Harvests				Total 2000	2-yr Total
		May 16	Jun 22	Jul 20	Aug 29		
Commercial Varieties—Available for Farm Use							
WL 327	1.95*	2.39*	2.23*	1.13*	1.29*	7.05*	8.99*
54V54	1.94*	2.32*	2.27*	1.11*	1.29*	7.00*	8.93*
DK 140	1.88*	2.33*	2.37*	1.11*	1.21*	7.02*	8.90*
Affinity+ Z	1.85*	2.31*	2.24*	1.15*	1.30*	7.00*	8.85*
Arc	1.93*	2.37*	2.35*	1.09*	1.11	6.92*	8.85*
Geneva	1.85*	2.40*	2.27*	1.10*	1.19*	6.96*	8.81*
DK 141	1.85*	2.34*	2.24*	1.07*	1.24*	6.89*	8.75*
53Q60	1.90*	2.32*	2.24*	1.08*	1.20*	6.84*	8.74*
Amerigraze 401+ Z	1.98*	2.23*	2.20*	1.10*	1.21*	6.74*	8.72*
Cimarron-SR	1.95*	2.27*	2.09	1.11*	1.23*	6.71*	8.66*
Abilene+ Z	1.70*	2.28*	2.21*	1.17*	1.29*	6.95*	8.66*
WL 325 HQ	1.85*	2.27*	2.25*	1.07*	1.21*	6.81*	8.65*
5246	1.89*	2.27*	2.30*	1.04*	1.14*	6.75*	8.64*
ABT 400 SCL	1.70*	2.30*	2.21*	1.18*	1.21*	6.89*	8.59*
TMF 4464	1.88*	2.08	2.19*	1.14*	1.24*	6.67*	8.54*
ABT 350	1.78*	2.34*	2.17*	1.04*	1.12*	6.67*	8.45*
REWARD	1.93*	2.00	2.17*	1.10*	1.22*	6.49*	8.42*
Experimental Varieties—Not Available for Farm Use							
C416	1.83*	2.41*	2.20*	1.18*	1.26*	7.05*	8.88*
GA-AG-MPX	1.89	2.31*	2.23*	1.07*	1.24*	6.85*	8.73*
W318	1.90*	2.18*	2.17*	1.11*	1.23*	6.69*	8.59*
W326	1.82*	2.13*	2.23*	1.14*	1.10	6.60*	8.42*
A9503	1.72	2.25*	2.10	1.17*	1.15*	6.67*	8.38*
Mean	1.86	2.28	2.23	1.11	1.21	6.83	8.69
CV,%	12.42	9.56	7.81	10.19	10.54	6.89	6.67
LSD, 0.05	0.33	0.31	0.25	0.16	0.18	0.66	0.82
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.							

Table 13. Dry matter yields (tons/acre) of alfalfa varieties sown 26 April 2000 at Lexington, Kentucky.			
	2000 Harvests		Total
Variety	Jul 14	Nov 24	2000
Commercial Varieties—Available for Farm Use			
53H81	1.19*	0.72*	1.91*
Arc	1.10*	0.70*	1.80*
Rushmore	1.06	0.69*	1.75*
Amerigraze 401+Z	1.07	0.64*	1.70*
Magnum V-wet	1.01	0.64*	1.64*
Magnum V	0.99	0.63*	1.62*
Abilene+Z	0.95	0.67*	1.62*
5312	0.97	0.60*	1.57
Geneva	0.97	0.58*	1.54
54V54	0.94	0.55*	1.49
ValuePlus1	0.94	0.53*	1.47
Saranac-AR	0.98	0.45	1.43
Experimental Varieties—Not Available for Farm Use			
ZH9840H	1.18*	0.56*	1.74*
ZG9840	1.06	0.63*	1.69*
ZC9854A	1.09*	0.50	1.58
A9503	0.94	0.66*	1.61
4M74	0.96	0.56*	1.52
Mean	1.04	0.61	1.65
CV,%	12.12	22.12	12.38
LSD, 0.05	0.17	0.19	0.29
* Not significantly different from the highest numerical value in the column based on the 0.05 LSD.			

Table 14. Characterization and performance of alfalfa varieties across years and locations		Variety Characteristics[1]						Owenton			Lexington																								Bowling Green[2]							Princeton					
			Disease Resistance[3]						1998[4]			1995					1997a				1997b				1998			1999		2000	1996						1998		1997				1999			
Variety	Proprietor/KY Distributor	FD[5]	Bw	Fw	An	PRR	APH	98	99	00	96	97	98	99	00	97	98	99	00	97	98	99	00	98	99	00	99	00	00	96	97	98	99	00	99	00	97	98	99	00	99	00
Commercial Varieties - Available for Farm Use																																													
329	CAL-WEST/Scott Seed	3	HR	HR	HR	HR	R																																						
5246	Pioneer Hi–Bred Int.	2	R	R	HR	HR	MR																																			*	*		
53Q60	Pioneer Hi–Bred Int.	3	HR	R	HR	HR	R																																			*	*		
5312	Public	3	HR	HR	HR	HR	HR																																						
53H81	Pioneer Hi–Bred Int.	3	HR	HR	HR	R	HR																						*																
54H69	Pioneer Hi–Bred Int.	4	HR	HR	HR	HR	R																				*	*															*		
5454	Pioneer Hi–Bred Int.	4	R	HR	HR	HR	LR																																						
54V54	Pioneer Hi–Bred Int.	4	HR	HR	HR	HR	HR																																			*	*		
630	Garst Seed Company	3	HR	HR	MR	R	-																																						
631	Garst Seed Company	4	HR	HR	R	HR	MR													*	*	*	*								*		*	*			*	*	*	*				
645	Garst Seed Company	4	HR	R	HR	HR	MR																							*	*	*	*											
ABT 205	ABT/Scott Seed/Sphar Seed	2	HR	HR	HR	HR	R														*	*	*														*	*	*					
ABT 350	ABT/Scott Seed/Sphar Seed	3	HR	HR	HR	HR	HR	*	*	*																								*						*	*		
ABT 400SCL	ABT/Scott Seed/Sphar Seed	4	HR	HR	HR	HR	HR																											*						*	*		
ABT 405	ABT/Scott Seed/Sphar Seed	4	HR	HR	HR	HR	R									*	*	*			*	*	*							*	*	*	*				*	*	*	*				
Abilene+Z	ABI/America's Alfalfa	5	HR	HR	HR	HR	R																						*					*							*		
Affinity+Z	ABI/America's Alfalfa	4	HR	HR	HR	HR	R													*	*		*							*	*	*	*	*							*	*		
Alfagraze	America's Alfalfa/Scott Seed/SS	2	MR	R	MR	LR	-	*		*								*																										
Amerigraze401+Z	ABI/America's Alfalfa	4	HR	HR	HR	HR	R	*	*	*						*	*	*	*					*		*			*								*	*	*	*	*	*		
Ameriguard 302+Z	ABI/America's Alfalfa	3	HR	HR	HR	HR	HR																					*																
Apollo	ABI/America's Alfalfa/Scott Seed	4	R	R	LR	R	-									*		*															*										
Arc	Public	4	LR	MR	HR	-	-							*	*	*		*								*	*		*										*	*		*	*		
Arrest	Novartis	3	HR	HR	HR	HR	R																	*		*																		
Baralfa 54	Barenbrug	-	R	HR	HR	HR	HR		*																												*							
Buffalo A	Public, uncertified	-	-	-	-	-	-																																						
Buffalo B	Public, uncertified	-	-	-	-	-	-																							*															
Choice	FFR/Southern States	4	HR	R	R	HR	R	*	*	*	*	*	*	*	*																*	*	*	*	*			*	*	*	*				
Cimarron-SR	Great Plains Research	4	HR	HR	HR	HR	MR																				*	*															*	*	
Cimarron-VR	Great Plains Research	5	HR	HR	R	R	MR													*			*																					
Cimarron-3i	Great Plains Research	4	HR	HR	HR	HR	MR			*										*		*	*														*	*						
Clean Sweep 1000	FFR	3	HR	HR	HR	HR	R																	*		*																		
Demand	ABI/AgriPro	3	HR	HR	HR	HR	R																							*	*		*	*										
Depend+EV	ABI/AgriPro	-	-	-	-	-	-																							*	*	*	*	*										
DK 127	Dekalb Genetics Corporation	3	HR	HR	HR	HR	-					*	*	*	*																	*	*	*										
DK 131HG	Dekalb Genetics Corporation	3	HR	HR	HR	HR	R																	*		*	*	*																
DK 133	Dekalb Genetics Corporation	4	HR	HR	HR	HR	R					*	*	*	*																	*	*											

Table 14. Characterization and performance of alfalfa varieties across years and locations		Variety Characteristics[1]						Owenton			Lexington																					Bowling Green[2]							Princeton					
			Disease Resistance[3]					1998[4]			1995					1997a				1997b				1998			1999		2000	1996					1998		1997				1999	
Variety	Proprietor/KY Distributor	FD[5]	Bw	Fw	An	PRR	APH	98	99	00	96	97	98	99	00	97	98	99	00	97	98	99	00	98	99	00	99	00	00	96	97	98	99	00	99	00	97	98	99	00	99	00
DK 140	Dekalb Genetics Corporation	4	HR	HR	HR	HR	HR	*	*	*										*	*	*	*												*	*					*	*
DK 141	Dekalb Genetics Corporation	4	HR	HR	HR	HR	H													*	*		*												*	*					*	*
Dominator	ABI/AgriPro	4	HR	HR	HR	HR	R					*	*	*	*																												
Emperor	ABI Alfalfa	4	HR	HR	HR	HR	HR	*																											*							
Excalibur II	Allied Seed	4	HR	HR	HR	HR	R					*	*	*	*																												
Feast	ABI/AgriPro	3	HR	HR	MR	HR	R									*	*	*	*																				*	*	*	*		
Fortress	Northrup King	3	R	R	R	HR	-	*	*									*		*				*		*				*	*							*	*	*			
Geneva	Novartis	4	HR	HR	HR	HR	HR	*	*	*																									*						*	*
Gem	FFR/Southern States	4	HR	HR	HR	HR	S	*	*	*											*	*	*								*	*	*				*	*	*			
GoldPlus	MBS	4	HR	HR	HR	HR	R																																				
Grazeking	FFR/Southern States	5	MR	HR	HR	R	S	*		*						*		*																								
Haygrazer	Great Plains Research	4	HR	HR	R	R	MR			*						*	*	*	*																								
Imperial	ABI/America's Alfalfa	3	HR	HR	HR	HR	R																							*	*	*	*	*								
Innovator+Z	ABI/America's Alfalfa	3	HR	HR	HR	HR	R																								*	*										
Legacy	Genesis Group/Green Seed	4	R	R	R	R	R																																				
LH3	Pioneer	4	HR	HR	HR	HR	R																			*																		
LH4	Pioneer	3	HR	HR	HR	R	R																																				
Magnum V	Dairyland Seed Co.	4	HR	HR	R	HR	MR																						*														
Magnum V - Wet	Dairyland Seed Co.	3	HR	HR	R	HR	R																						*														
MultiQueen	CAL-WEST Seeds	4	HR	HR	HR	HR	R					*	*	*	*																												
Pasture Plus	MBS	3	HR	HR	R	HR	MR																													*	*						
ProGro	MBS	4	HR	HR	R	HR	MR																														*						
Reward		4	HR	HR	R	HR	MR																																			*	*
Rushmore	Novartis	4	HR	HR	HR	HR	HR				*	*	*	*	*														*			*					*	*	*			
Saranac-AR	Public	4	MR	R	HR	LR	-	*	*	*		*	*	*	*			*						*		*	*			*	*								*			
Spredor-3	Novartis	1	HR	HR	R	MR	S	*	*	*								*																									
Stampede	Allied Seed	3	HR	R	R	HR	R	*	*	*								*	*																								
Stellar	W-L Research	4	HR	HR	HR	HR	LR																																				
Supercuts	ABT/Scott Seed	4	HR	HR	HR	HR	R					*	*	*	*																*			*	*							
TMF4355LH	Mycogen Seeds	3	HR	R	HR	HR	R																				*					*										
TMF4464	Mycogen Seeds	4	HR	HR	HR	HR	R																																			*	*
TMF Generation	Mycogen Seeds	4	HR	HR	HR	HR	R																							*	*	*	*									
ValuePlus 1	Forage Genetics Int.	4	HR	HR	HR	HR	R																																				
Vernal	Public	2	R	MR	-	-	-	*	*																																		
Wintergreen	ABI Alfalfa/Renk Seed (Wisconsin)	3	HR	HR	HR	HR	R	*	*	*											*	*	*															*	*	*	*		
WL252HQ	W-L Research/Green Seed	2	HR	HR	HR	HR	LR																								*	*	*	*								
W318	W-L Research/Green Seed	4	HR	HR	HR	HR	HR																																			*	*
WL323	W-L Research/Green Seed	4	HR	HR	HR	HR	R				*	*	*	*	*																											

Table 14. Characterization and performance of alfalfa varieties across years and locations		Variety Characteristics[1]						Owenton			Lexington																					Bowling Green[2]							Princeton					
			Disease Resistance[3]					1998 [4]			1995					1997a				1997b				1998			1999		2000	1996					1998		1997				1999	
Variety	Proprietor/KY Distributor	FD [5]	Bw	Fw	An	PRR	APH	98	99	00	96	97	98	99	00	97	98	99	00	97	98	99	00	98	99	00	99	00	00	96	97	98	99	00	99	00	97	98	99	00	99	00
WL324	W-L Research/Green Seed	3	HR	HR	HR	HR	HR																							*	*	*	*	*								
WL325HQ	W-L Research/Green Seed	3	HR	HR	HR	HR	R														*		*								*		*								*	*
W326	W-L Research/Green Seed	5	HR	HR	HR	HR	R																																			*	*
WL326GZ	W-L Research Inc./Green Seed	4	HR	HR	HR	HR	HR	*	*	*						*	*	*	*																*		*	*	*				
WL327	W-L Research Inc./Green Seed	4	HR	HR	HR	HR	HR																																		*	*
WL332SR	W-L Research Inc./Green Seed	4	HR	HR	HR	HR	HR																														*	*	*			
Experimental varieties -Not Available for Farm Use																																										
3A30	Novartis Seeds	3	HR	HR	HR	HR	R																																			
3R22	Garst Seed Co.	3	HR	HR	HR	HR	R																			*																	
4m74	Forage Genetics Int.	4	HR	HR	HR	HR	HR																																			
93-116	W-L Research/ Experimental	4	HR	HR	HR	HR	HR							*																*	*											
A9107	BARENBRUG USA/Experimental	4	R	HR	HR	-	S																								*											
A941O5PL1	Pioneer/Experimental	-	-	-	-	-	-									*	*	*	*																							
A9503	FFR/Experimental	3.5	HR	HR	HR	HR	HR																																		*	*
A9508	FFR/Experimental	-	-	-	-	-	-									*		*																								
ABI-9231	ABI/Experimental	-	-	-	-	-	-				*	*	*	*	*																											
CAR9426	ABI Alfalfa/Experimental	-	-	-	-	-	-									*	*	*																								
C106	W-L Research/ Experimental	4	HR	HR	HR	HR	LR																*										*	*								
C231	W-L Research Inc.	4	HR	HR	HR	HR	HR													*	*	*	*																			
C416	W-L Research Inc.	4	HR	HR	HR	HR	HR																																		*	*
GA-APGC	GA Agric. Exp. Sta./Experimental	3	R	R	R	R	MR					*	*	*	*	*		*																								
GA-AG-MPX	GA Agric. Exp. Sta./Experimental	2	HR	HR	R	R	R																																			*	*
GA-MX	GA Agric. Exp. Sta./Experimental	7	MR	HR	R	MR	R																																			
W116	W-L Research/ Experimental	3	HR	HR	R	HR	LR											*																								
ZB9546	ABI/Experimental	4	HR	HR	HR	HR	HR														*	*	*																			
ZC9623S	ABI/Experimental	2	-	-	-	-	-														*	*																				
ZC9630S	ABI/Experimental	3	-	-	-	-	-															*																				
ZC9346	ABI/Experimental	-	-	-	-	-	-					*	*																													
ZC9650	ABI/Experimental	-	-	-	-	-	-																																		*	
ZC9651	ABI/Experimental	5	-	-	-	-	-																																		*	*
ZC9750A	ABI/Experimental	-	-	-	-	-	-																																		*	
ZC9751A	ABI/Experimental	-	-	-	-	-	-																																		*	
ZC 9854a	ABI/Experimental	5	HR	HR	HR	HR	HR																																			

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			Disease Resistance[3]					1998[4]			1995					1997a				1997b				1998			1999		2000	1996					1998		1997				1999	
Variety	Proprietor/KY Distributor	FD[5]	Bw	Fw	An	PRR	APH	98	99	00	96	97	98	99	00	97	98	99	00	97	98	99	00	98	99	00	99	00	00	96	97	98	99	00	99	00	97	98	99	00	99	00
ZG9430	ABI/Experimental	-	-	-	-	-	-																								*	*	*	*								
ZG9530	ABI/Experimental	-	-	-	-	-	-																								*	*										
ZG9533	ABI/Experimental	-	-	-	-	-	-																							*			*									
ZG9543	ABI/Experimental	-	-	-	-	-	-																								*	*	*	*								
ZG9640	ABI/Experimental	-	-	-	-	-	-																												*							
ZG9641	ABI/Experimental	-	-	-	-	-	-																												*							
ZG9840	ABI/Experimental	4	HR	HR	HR	HR	HR																						*													
ZH 9840h	ABI/Experimental	4	HR	HR	HR	HR	HR																						*													
ZH9841H	ABI/Experimental	-	-	-	-	-	-																				*															

[1] Variety Characteristics: FD=Fall Dormancy, Bw=Bacterial Wilt, Fw=Fusarium Wilt, An=Anthracnose, PRR=Phytophthora Root Rot, APH=Aphanomyces Root Rot.
[2] The Bowling Green test is on soil infested with Phytophthora and Aphanomyces root rots.
[3] Disease Resistance: S=Susceptible, LR=Low Resistance, MR=Moderate Resistance, R=Resistance, HR=High Resistance.
[4] Establishment Year
[5] Fall Dormancy: 1=Spredor-3, 2=Vernal, 3=Ranger, 4=Saranac, 5=DuPuits.
Shaded boxes indicate that the variety was not in the test.
Open boxes indicate the variety was in the test but yielded significantly less than the top-ranked variety in the test.
* Not significantly different from the top-ranked variety in the test.

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