

Alfalfa Variety Testing

E. Charles Brummer, associate professor
Mark Smith, research associate
Department of Agronomy

Introduction

New varieties of alfalfa are released by commercial breeding companies each year. The Iowa State University forage breeding program, in conjunction with the Iowa Crop Improvement Association, tests commercially available varieties at five locations in Iowa, including at the Northeast Research Farm. Funding to conduct these tests is provided by entrants who pay a fee to have their varieties included. Our tests provide an unbiased comparison among cultivars deemed by the companies to be adapted to particular regions of the state.

Materials and Methods

Variety trials were planted in April 1997, 1998, and 1999 with a drill at a rate of 18 lb/A. Each variety was replicated four times. Plot size was 3' x 12'. The tests were harvested three times in the year of establishment and four times per year thereafter using a sickle bar harvester. Fertility was maintained according to ISU soil test recommendations.

Results and Discussion

Forage yields in tons of dry matter per acre are reported for tests sown in 1997 (Table 1), 1998 (Tables 2 and 3), and 1999 (Tables 4 and 5). Data for tests sown in 2000 will be reported beginning next year. In 1998 and 1999, a test that was not sprayed to control potato leafhoppers was planted (Tables 3 and 5). When choosing varieties, several traits are important, including high yield, maintenance of yielding ability through the later years of a trial, and disease resistance. More complete information on the alfalfa variety trials, including seed sources and disease resistance profiles, are available in ISU Extension Bulletin AG-84 or online at: <http://www.public.iastate.edu/~brummer/extension.html>.

Acknowledgments

We thank Ken Pecinovsky for his assistance and the Iowa Crop Improvement Association for funding the research.

Table 1. Yield of alfalfa varieties planted in 1997.

Variety	Yield (tons dry matter/acre)				Avg ^a
	1997	1998	1999	2000	
TMFGeneration	3.06	7.09	6.21	4.31	5.87
Innovator +Z	3.17	6.76	5.92	4.55	5.75
DK140	3.22	7.11	5.82	4.27	5.73
DK142	2.88	6.99	5.61	4.58	5.73
DK127	3.07	6.95	5.99	4.20	5.71
AmeriGraze 401+Z	3.12	6.66	5.95	4.47	5.69
Nemesis	3.08	7.02	5.90	4.13	5.68
Feast	2.88	6.73	5.95	4.37	5.68
GH767	3.32	6.73	5.87	4.38	5.66
620	3.05	6.51	6.09	4.37	5.66
5312	3.01	6.68	5.96	4.23	5.63
5454	2.86	6.89	5.67	4.23	5.60
DK143	3.03	6.85	5.55	4.09	5.50
Surpass	3.00	6.53	5.77	4.13	5.48
Choice	3.15	6.75	5.39	4.28	5.47
DK141	3.11	6.79	5.74	3.86	5.47
Spur	2.98	6.98	5.35	3.97	5.43
Rushmore	2.99	6.92	5.35	3.78	5.35
5347LH	2.93	6.63	5.31	3.68	5.21
GH787	2.89	6.58	5.38	3.65	5.20
AmeriGuard 301	2.84	6.47	5.17	3.62	5.09
Interceptor	2.87	6.48	5.12	3.61	5.07
Vernal	3.17	5.82	5.07	3.69	4.86
Mean	3.02	6.69	5.62	4.09	5.47
LSD(5%)	0.26	0.37	0.59	0.41	0.31

^a Averages include only 1998-2000.**Table 2. Yield of alfalfa varieties planted in 1998 and sprayed twice per year for potato leafhopper control.**

Variety	Yield (tons dry matter/acre)			
	1998	1999	2000	Avg ^a
5454	4.89	6.78	5.83	6.30
ABT350	4.96	6.71	5.79	6.25
Geneva	5.05	6.72	5.76	6.24
DK140	5.00	6.73	5.53	6.13
Yielder	4.89	6.36	5.87	6.11
Mainstay	4.96	6.34	5.73	6.04
Rainier	4.87	6.24	5.69	5.96
DK142	5.21	6.24	5.63	5.94
620	5.09	6.36	5.45	5.91
53Q60	4.80	6.19	5.58	5.89
DK141	5.39	6.34	5.37	5.85
DK124	4.75	6.22	5.46	5.84
Depend+EV	5.02	6.16	5.46	5.81
Innovator +Z	5.04	5.96	5.43	5.70
TMF421	4.85	6.04	5.29	5.66
GH757	5.03	6.09	5.23	5.66
Pristine	4.87	6.17	5.10	5.63
645	4.95	5.89	5.19	5.54
CleanSweep 1000	4.76	6.02	5.01	5.52
DK134	5.05	5.82	5.07	5.44
TMF4355LH	4.95	6.08	4.73	5.40
Baralfa 54	4.68	6.17	4.56	5.36
227LH	4.58	5.73	3.90	4.81
Vernal	4.60	4.99	4.51	4.75
Mean	4.93	6.18	5.30	5.74
LSD(5%)	0.33	0.48	0.47	0.36

^a Averages include only 1999-2000.**Table 3. Yield of alfalfa varieties planted in 1998 and managed without spraying for potato leafhoppers.**

Variety	Yield (tons dry matter/acre)			
	1998	1999	2000	Avg ^a
5454	4.47	5.82	5.67	5.75
TMF4355LH	4.90	5.86	5.17	5.52
CleanSweep 1000	4.57	5.55	4.86	5.21
Vernal	4.25	4.89	5.34	5.11
227LH	4.47	5.44	4.33	4.88
Mean	4.74	5.59	4.98	5.28
LSD(5%)	0.39	0.31	0.62	0.48

^a Averages include only 1999-2000.

Table 4. Yield of alfalfa varieties planted in 1999 and sprayed twice per year for potato leafhopper control.

Variety	Yield (tons dry matter/acre) 2000
9701	5.37
Rebound 4.2	5.28
645-II	5.26
FQ315	5.18
Trump	5.12
6420	4.97
Geneva	4.89
53Q60	4.85
Abound	4.79
DK142	4.78
DK140	4.73
Innovator +Z	4.67
WinterGold	4.61
DK124	4.60
Vernal	4.59
5454	4.59
GreenFeast	4.53
DK134	4.50
5312	4.43
Award	4.38
6410	4.33
FQ314	4.24
DK141	4.11
Mean	4.74
LSD(5%)	0.34

Table 5. Yield of alfalfa varieties planted in 1999 and managed without spraying for potato leafhoppers.

Variety	Yield (tons dry matter/acre) 2000
5454	5.05
6310	4.82
Vernal	4.80
TrailBlazer 3.0	4.73
54H69	4.71
DK131HG	4.56
Ameriguard 302+Z	4.34
Mean	4.69
LSD(5%)	0.68