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Alfalfa Variety Testing

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Abstract
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 throughout Iowa, including at the Northeast Research Farm, Nashua, IA. Funding to conduct these tests is provided by entrants who pay a fee to have their varieties included. Our tests provide an unbiased comparison of cultivars deemed to be adapted to particular regions of the state by the companies.

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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 throughout Iowa, including at the Northeast Research Farm, Nashua, IA. Funding to conduct these tests is provided by entrants who pay a fee to have their varieties included. Our tests provide an unbiased comparison of cultivars deemed to be adapted to particular regions of the state by the companies.

Materials and Methods

Variety trials were planted in April 1999, 2000, and 2001 with a drill at a rate of 18 lb/acre. Each variety was replicated four times. Plot size was 3 × 12 ft. The tests were harvested three times in the year of establishment and four times/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/acre are reported for tests sown in 1999 (Tables 1 and 2), 2000 (Table 3), and 2001 (Table 4). Data for tests sown in 2002 will be reported beginning next year. All tests are sprayed as needed to control potato leafhoppers, with the exception of one trial in 1999, which was not sprayed (Table 2). 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.

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Table 1. 1999 Nashua test yields (tons dry matter/acre).

Variety	1999	2000	2001	2002	Avg[1]
9701	0.98	5.37	6.28	6.10	5.92
Rebound 4.2	0.95	5.28	6.13	6.25	5.89
Trump	0.97	5.12	6.23	6.22	5.86
645 II	1.04	5.26	6.02	5.84	5.71
FQ315	1.04	5.18	5.82	5.93	5.64
Geneva	0.94	4.89	5.91	5.78	5.52
6420	0.90	4.97	5.83	5.65	5.49
53Q60	0.78	4.85	5.79	5.82	5.48
WL327	0.95	4.89	5.78	5.64	5.43
Abound	0.80	4.79	5.71	5.69	5.40
Innovator+Z	0.96	4.67	5.97	5.55	5.40
DK142	0.87	4.78	5.76	5.57	5.37
DK140	0.89	4.73	5.67	5.64	5.35
GreenFeast	0.94	4.53	5.83	5.62	5.33
5454	0.79	4.59	5.83	5.49	5.30
WinterGold	0.88	4.61	5.63	5.58	5.27
5312	0.86	4.43	5.63	5.41	5.16
DK124	1.00	4.60	5.51	5.26	5.13
6410	0.87	4.33	5.58	5.37	5.10
DK134	0.99	4.50	5.37	5.28	5.05
Vernal	0.87	4.59	5.27	5.12	4.99
Award	0.88	4.38	4.96	5.01	4.78
FQ314	0.95	4.24	5.04	5.04	4.78
DK141	0.88	4.11	5.08	5.12	4.77
Mean	0.92	4.74	5.69	5.58	5.34
LSD (5%)	0.13	0.34	0.41	0.41	0.17

[1]Averages include 2000–2002.

Table 2. 1999 Nashua unsprayed test yields (tons dry matter/acre).

Variety	1999	2000	2001	2002	Avg[1]
5454	0.86	5.05	5.12	5.60	5.26
6310	1.02	4.82	5.02	5.23	5.02
TrailBlazer 3.0	0.72	4.73	4.98	5.08	4.93
Vernal	0.96	4.80	4.88	5.10	4.93
DK131HG	0.87	4.56	4.84	5.13	4.84
54H69	0.90	4.71	4.72	4.98	4.80
Ameriguard 302+Z	0.97	4.34	4.45	4.98	4.59
Mean	0.92	4.69	4.86	5.10	4.88
LSD (5%)	0.17	0.68	0.62	0.50	0.15

[1]Averages include only 2000–2002.

Table 3. 2000 Nashua test yields (tons dry matter/acre).

Variety	2000	2001	2002	Avg[1]
4200	2.54	5.69	5.57	5.63
6420	2.32	5.65	5.60	5.63
Phabulous	2.47	5.63	5.57	5.60
Somerset	2.54	5.68	5.39	5.54
DK134	2.67	5.51	5.45	5.48
5454	2.43	5.55	5.38	5.47
GH 700	2.77	5.46	5.42	5.44
A4230	2.69	5.50	5.28	5.39
Multiplier 3	2.49	5.16	5.36	5.26
54V54	2.49	5.47	4.93	5.20
631	2.65	5.37	5.01	5.19
645 II	2.67	5.28	4.84	5.06
53Q60	2.36	5.31	4.80	5.05
Feast+EV	2.62	5.00	5.10	5.05
6410	2.70	5.06	4.99	5.03
5312	2.71	5.33	4.67	5.00
620	2.90	5.35	4.55	4.95
Innovator+Z	2.63	4.98	4.71	4.84
Vernal	2.40	4.84	4.71	4.77
Defence+EV	2.38	4.94	4.01	4.48
Mean	2.57	5.34	5.07	5.20
LSD (5%)	0.28	0.27	0.45	0.31

[1]Averages include 2001–2002.

Table 4. 2001 Nashua test yields (tons dry matter/acre).

Variety	2001	2002
6410	3.07	7.08
DKA42 15	2.83	7.05
630	3.11	6.97
5454	2.88	6.92
DK133	2.87	6.90
6420	3.26	6.89
620	2.94	6.81
WL342	3.13	6.78
53Q60	3.04	6.65
54V54	2.88	6.64
Vernal	2.90	6.58
Ameristand 403T	2.82	6.53
Feast+EV	2.93	6.48
645 II	2.90	6.40
Innovator+Z	2.87	6.37
Yielder	2.71	5.98
Mean	2.94	6.74
LSD (5%)	0.37	0.56