

**2005 South Dakota Alfalfa Variety Trials**  
**Vance N. Owens and Chris Lee, South Dakota State University**

**Establishment and Management**

Alfalfa is planted at a rate of 18 lbs PLS acre<sup>-1</sup>. Plots are 4 feet wide and 20 feet long and planted with a Brillion broadcast seeder, except at Belle Fourche where plots are 3 feet wide and 20 feet long and consist of 5 rows with 6-inch spacings. Six replicates are planted at each location except at Belle Fourche where only 4 replicates are planted. Stage of maturity for each trial is determined before harvest using the Kalu and Fick (1981, Crop Science 21:267-271) mean-stage-by-count method. Maturity information is included in the yield tables. A sickle-bar harvester was used to harvest all plots. Fresh alfalfa samples were randomly obtained during harvest and dried to determine yield on a dry matter basis. Herbicides and insecticides are used as needed to successfully establish and manage alfalfa pests. Soil fertility is maintained throughout the trial at levels recommended by the SDSU soil testing lab.

**Worksheet Description**

Each worksheet has a designated name detailing the location of the test and the year it was planted. For example the worksheet titled 'Brookings 2002' is the trial planted near Brookings in 2002. Included in this report are yield and cutting data for the following locations:

<b>Location</b>	<b>Established</b>	<b>2005 cuttings</b>
Brookings (SD Crop Improvement Farm)	2002	2
Brookings (SD Crop Improvement Farm)	2004	2
Belle Fourche (Art Walker Farm)	2005	1
Beresford (Southeast Research Station)	2003	3
Beresford (Southeast Research Station)	2005	2
Highmore (Central Research Station)	2003	2
Highmore (Central Research Station)	2005	1
Watertown (Northeast Research Station)	2004	3

**2005 Results**

New trials were planted at Beresford, Highmore, and Belle Fourche, SD. This is the first year a trial has been planted under irrigation in western SD (Belle Fourche). Yields for each location are listed in tons dry matter/acre. Released cultivars are listed first followed by experimental entries (when present).

Adequate early season moisture provided good establishment conditions and first cut yields on established stands. However, limited mid-season precipitation reduced second cut yields at Beresford, Brookings, and Highmore. Also, due to lack of moisture for several years in parts of western SD, irrigation was unavailable until later in the season at the new Belle Fourche site, allowing us to take one cutting only in mid-August.

**Contact Information**

If you have any questions about this report please contact Vance Owens.

office phone: 605-688-6088  
FAX: 605 688-4452  
email: Vance.Owens@sdstate.edu  
mailing address:  
Plant Science Department  
South Dakota State University  
NPB 247, Box 2140-C  
Brookings, SD 57007

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Brookings, SD; South Dakota Crop Improvement Research Farm; Brookings County

Planting Date: 1 May 2002

Experimental Design: Randomized complete block with six replicates

Entry	2005			2004	2003	3-year
	16-Jun	7-Jul	Total	Total	Total	Total
Tons DM/Acre						
Dakota	1.18	0.70	1.88	1.88	0.88	4.64
Husky	1.14	0.71	1.85	1.92	0.85	4.62
6420	1.15	0.75	1.89	1.88	0.84	4.61
Hybriforce 400	1.10	0.71	1.80	1.85	0.87	4.53
Vernal	1.18	0.74	1.91	1.86	0.72	4.50
Survivor	1.15	0.69	1.84	1.84	0.78	4.46
54H91	1.09	0.73	1.81	1.76	0.85	4.42
Frontier 2000	1.15	0.67	1.83	1.93	0.65	4.40
WL 327	1.20	0.73	1.93	1.69	0.79	4.40
DS 9809	1.12	0.73	1.84	1.74	0.81	4.39
LS 102	1.09	0.73	1.82	1.86	0.72	4.39
Triad LA	1.17	0.71	1.88	1.74	0.77	4.38
Feast +Ev	1.15	0.63	1.78	1.78	0.78	4.34
Multiplier 3	1.10	0.69	1.78	1.71	0.81	4.30
DS 211 Hyb	1.07	0.69	1.76	1.73	0.79	4.27
WL 319 HQ	1.02	0.69	1.71	1.76	0.78	4.25
GoldRush 747	1.11	0.71	1.81	1.62	0.80	4.23
54V54	1.09	0.77	1.86	1.55	0.73	4.14
Ameristand 403T	1.07	0.67	1.74	1.68	0.72	4.14
MegaTon 3.0	1.15	0.73	1.88	1.47	0.80	4.14
Setter	1.08	0.65	1.73	1.67	0.74	4.14
GH 766	1.10	0.73	1.83	1.49	0.74	4.05
A 30-06	1.09	0.67	1.76	1.47	0.74	3.97
Maverick	1.10	0.59	1.69	1.44	0.70	3.83
Average	1.12	0.70	1.82	1.72	0.78	4.32
Maturity (Kalu & Fick)	4.7	5.0				
LSD (P=0.10)	NS	0.07	NS	NS	0.10	NS
CV (%)	9.8	11.0	8.5	19.3	13.8	10.6
P-value	0.627	0.055	0.449	0.250	0.028	0.231

NS = not significant at 0.10 level of probability

Treflan applied before planting

50 lbs P2O5 incorporated before planting

### SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Brookings, SD; South Dakota Crop Improvement Research Farm; Brookings County

Planting Date: 28 April 2004

Experimental Design: Randomized complete block with six replicates

Entry	2005			2004	2-year
	15-Jun	6-Jul	Total	Total	Total
	Tons DM/Acre				
54V46	1.51	1.17	2.68	1.38	4.06
6400 HT	1.55	1.11	2.66	1.39	4.05
Vernal	1.57	1.05	2.62	1.37	3.99
6415	1.50	1.14	2.63	1.33	3.97
54H91	1.48	1.03	2.51	1.42	3.93
Jade 111 NC+	1.43	1.14	2.57	1.34	3.90
Hybriforce 420/wet	1.46	1.10	2.56	1.29	3.85
Summer Gold	1.49	1.07	2.55	1.28	3.83
54Q25	1.39	1.05	2.44	1.33	3.77
WL 357HQ	1.33	1.07	2.40	1.37	3.77
Average	1.47	1.09	2.56	1.35	3.91
Maturity (Kalu & Fick)	4.6	4.7			
LSD (P=0.10)	0.12	NS	NS	NS	NS
CV (%)	8.5	11.3	9.3	6.6	6.7
P-value	0.063	0.579	0.529	0.226	0.486

NS = not significant at 0.10 level of probability

Treflan applied before planting

50 lbs P2O5 incorporated before planting

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Belle Fourche, SD; Art Walker Farm; Butte County

Planting Date: 3 May 2005

Experimental Design: Randomized complete block with four replicates

Entry	22-Aug
	Tons DM/Acre
Escalade	1.72
Integrity	1.61
Mountaineer 2.0	1.58
Rebound 5.0	1.54
LegenDairy 5.0	1.52
4A421	1.51
6400 HT	1.44
Vernal	1.38
54V46	1.36
WL 357HQ	1.23
WL 335HQ	1.05
HybriForce 400	0.87
Average	1.40
Maturity (Kalu & Fick)	4.1
LSD (P=0.10)	NS
CV (%)	32.4
P-value	0.354

NS = not significant at 0.10 level of probability

75 lbs P2O5 applied preplant

**SOUTH DAKOTA ALFALFA VARIETY TRIAL**

Location: Beresford, SD; SDSU Southeast Research Farm; Clay County

Planting Date: 29 April 2003

Experimental Design: Randomized complete block with six replicates

Entry	2005				2004 Total	2003 Total	3-year Total
	31-May	29-Jun	4-Aug	Total			
Tons DM/Acre							
Alfatar II	1.88	2.20	1.20	5.29	7.12	2.53	14.94
FSG 406	1.82	2.14	1.58	5.53	6.75	2.37	14.66
6420	1.93	2.14	1.28	5.34	6.55	2.64	14.53
Evermore	2.14	2.18	0.90	5.21	6.71	2.51	14.44
Extreme	2.09	2.40	1.20	5.69	6.32	2.37	14.39
Somerset	2.00	2.27	1.18	5.45	6.53	2.34	14.32
Abundance	2.28	2.52	1.01	5.80	6.33	2.18	14.31
54V46	2.02	2.29	1.22	5.52	6.25	2.50	14.27
WL 319HQ	2.34	2.62	0.77	5.73	6.15	2.32	14.20
Rebel	2.21	2.18	1.08	5.47	6.08	2.49	14.05
A 30-06	1.98	2.15	1.02	5.14	6.40	2.47	14.01
54Q25	1.95	2.15	0.95	5.05	6.41	2.45	13.91
WL 357HQ	1.95	2.09	1.34	5.39	6.16	2.33	13.88
Husky Supreme	2.13	2.33	0.81	5.27	6.11	2.48	13.86
Gold Rush 747	1.82	2.08	1.04	4.93	6.47	2.44	13.84
FSG 351	1.84	2.20	1.01	5.06	6.32	2.33	13.70
Bullseye	1.87	2.04	0.72	4.63	6.27	2.71	13.60
420	1.79	1.98	0.97	4.75	6.46	2.35	13.56
FSG 505	1.89	2.16	1.01	5.07	6.20	2.28	13.54
Hybriforce-420/Wet	1.96	2.28	0.86	5.09	5.90	2.50	13.49
Journey 204 Hyb. Alf.	2.01	2.10	0.81	4.93	6.11	2.42	13.46
Rugged	1.84	1.96	0.92	4.72	6.02	2.60	13.35
Vernal	1.97	1.98	0.59	4.54	6.32	2.44	13.30
4500	1.98	2.11	0.83	4.92	5.99	2.23	13.14
Notice II	1.85	2.09	0.84	4.79	6.07	2.20	13.06
Average	1.98	2.12	1.00	5.17	6.32	2.42	13.91
Maturity (Kalu & Fick)	4.8	5.6	5.5				
LSD (P=0.10)	NS	0.28	NS	NS	NS	NS	NS
CV (%)	16.6	13.3	56.9	15.9	11.8	12.3	10.8
P-value	0.286	0.023	0.622	0.368	0.714	0.285	0.884

NS = not significant at 0.10 level of probability

Treflan applied before planting

50 lbs P2O5/Acre - preplant

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Beresford, SD; SDSU Southeast Research Farm; Clay County

Planting Date: 2 May 2005

Experimental Design: Randomized complete block with six replicates

Entry	2005		Total
	14-Jul	26-Aug	
	Tons DM/Acre		
6400 HT	0.85	0.75	1.61
4S419	0.71	0.80	1.51
54V46	0.80	0.69	1.49
FSG 408DP	0.77	0.66	1.43
Meadowlark	0.73	0.68	1.41
54H91	0.91	0.47	1.38
6415	0.80	0.56	1.36
Genoa	0.67	0.67	1.34
WL 357HQ	0.79	0.53	1.32
Escalade	0.67	0.64	1.31
Vernal	0.72	0.58	1.31
Integrity	0.85	0.44	1.29
Marvel	0.83	0.45	1.29
361 HY	0.64	0.47	1.11
4A421	0.69	0.41	1.09
Average	0.76	0.59	1.35
Maturity (Kalu & Fick)	5.3	5.5	
LSD (P=0.10)	NS	0.16	0.25
CV (%)	20.5	29.3	19.3
P-value	0.132	0.001	0.098

NS = not significant at 0.10 level of probability

Treflan applied before planting

50 lbs P2O5/Acre - preplant

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Highmore, SD; SDSU Central Research Farm; Hyde County

Planting Date: 28 April 2003

Experimental Design: Randomized complete block with six replicates

Entry	2005			2004	2003	3-year
	16-Jun	11-Jul	Total	Total	Total	Total
Tons DM/acre						
<b>Released cultivars</b>						
A 30-06	1.69	1.27	2.96	4.75	1.03	8.75
DKA 42-15	1.65	1.42	3.07	4.18	1.07	8.33
Hybriforce 400	1.71	1.27	2.98	4.04	1.17	8.18
Vernal	1.63	1.35	2.97	4.19	0.93	8.09
WL 319HQ	1.56	1.43	2.98	4.24	0.86	8.08
Journey Brand 204 Hyb.	1.66	1.29	2.95	4.03	1.04	8.02
Somerset	1.66	1.31	2.97	3.82	1.22	8.01
Hybriforce 420 Wet	1.58	1.33	2.91	3.83	1.23	7.97
WL 357HQ	1.67	1.37	3.03	3.77	1.15	7.96
Maverick	1.52	1.45	2.96	3.87	1.05	7.89
Notice II	1.53	1.32	2.85	3.99	1.04	7.89
Husky Supreme	1.51	1.28	2.79	3.89	1.13	7.82
54V54	1.56	1.33	2.90	3.92	0.98	7.80
Alfastar II	1.42	1.03	2.45	3.93	1.18	7.56
Gold Rush 747	1.43	1.24	2.67	3.71	1.11	7.48
Setter	1.44	1.21	2.64	3.58	1.21	7.43
FK 421	1.39	1.07	2.46	3.40	1.15	7.01
Multiplier 3	1.31	1.07	2.38	3.43	1.13	6.94
<i>Released cultivar average</i>	<i>1.55</i>	<i>1.28</i>	<i>2.83</i>	<i>3.92</i>	<i>1.09</i>	<i>7.85</i>
<b>Experimental strains</b>						
CW 04030	1.65	1.50	3.15	4.38	1.11	8.63
CW 14026	1.66	1.44	3.09	4.31	1.07	8.47
CW 04022	1.61	1.44	3.05	4.08	0.99	8.12
CW 83010	1.58	1.37	2.95	4.04	0.98	7.96
CW 04027	1.43	1.33	2.75	4.09	1.08	7.92
CW 03019	1.55	1.18	2.73	4.25	0.91	7.90
CW 94023	1.52	1.14	2.66	4.26	0.91	7.84
CW 94025	1.65	1.31	2.96	4.04	0.83	7.82
CW 93013	1.47	1.10	2.57	3.69	1.10	7.36
<i>Experimental strain average</i>	<i>1.57</i>	<i>1.31</i>	<i>2.88</i>	<i>4.13</i>	<i>1.00</i>	<i>8.00</i>
Overall average	1.56	1.29	2.85	3.99	1.06	7.90
Maturity (Kalu & Fick)	5.3	6.3				
LSD (P=0.10)	NS	0.23	0.39	NS	0.20	NS
CV (%)	15.2	19.0	14.4	18.5	19.6	11.8
P-value	0.254	0.044	0.053	0.526	0.037	0.247

NS = not significant at 0.10 level of probability

Treflan applied pre-planting

50 lbs P2O5/Acre - preplant

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Highmore, SD; SDSU Central Research Farm; Hyde County

Planting Date: 3 May 2005

Experimental Design: Randomized complete block with six replicates

Entry	2005
	11-Jul
Tons DM/Acre	
Mountaineer 2.0	1.68
Labrador	1.64
6400 HT	1.61
4A421	1.57
Vernal	1.57
361 HY	1.56
Rebound 5.0	1.55
LegenDairy 5.0	1.43
54V46	1.32
WL 335HQ	1.23
Integrity	1.22
Average	1.49
Maturity (Kalu & Fick)	6.5
LSD (P=0.05)	NS
CV (%)	29.0
P-value	0.567

NS = not significant at 0.10 level of probability

Treflan applied before planting

50 lbs P2O5/Acre - preplant

## SOUTH DAKOTA ALFALFA VARIETY TRIAL

Location: Watertown, SD; SDSU Northeast Experiment Station; Codington County

Planting Date: 28 April 2004

Experimental Design: Randomized complete block with six replicates

Entries	2005			Total
	22-Jun	18-Jul	22-Aug	
	Tons Dry Matter/Acre			
6200 HT	2.51	1.77	1.08	5.37
WL 319HQ	2.44	1.78	1.12	5.35
eXtreme	2.46	1.77	1.07	5.31
54Q25	2.52	1.68	1.05	5.24
ProSeed-381 Hyb	2.50	1.67	1.07	5.24
54H91	2.54	1.67	0.98	5.19
HybriForce 420/wet	2.54	1.64	1.01	5.19
WL 348AP	2.40	1.69	1.02	5.10
54V46	2.25	1.65	1.11	5.00
GH 711	2.22	1.76	1.01	4.99
6415	2.24	1.67	1.06	4.97
Vernal	2.50	1.51	0.95	4.96
Average	2.43	1.69	1.04	5.16
Maturity (Kalu & Fick)	5.8	5.3	4.7	
LSD (P=0.10)	NS	NS	NS	NS
CV (%)	11.1	10.3	18.5	11.1
P-value	0.289	0.326	0.944	0.942

NS = not significant at 0.10 level of probability

50 lbs P2O5/Acre - preplant

Treflan applied preplant