

2006 South Dakota Alfalfa Variety Trials
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Establishment and Management

Alfalfa is planted at a rate of 18 lbs PLS acre⁻¹. 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 2006' is the trial planted near Brookings in 2006. Yield is sorted in descending order based on the one-to-four year total. Included in this report are yield and cutting data for the following locations:

Location	Established	No. of cuttings
Brookings (SD Crop Improvement Farm, Irrigated)	2006	3
Bell Fourche (Art Walker Farm, Irrigated)	2005	3
Beresford (Southeast Research Station)	2003	3
Beresford (Southeast Research Station)	2005	3
Highmore (Central Research Station)	2003	1
Highmore (Central Research Station)	2005	1
Watertown (Northeast Research Station)	2004	3

2006 Results

New trials were planted at Brookings and Watertown, SD. This is the first year a trial has been planted under irrigation at the Brookings location and this enabled us to harvest three cutting in the seeding year. 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 third cut yields at Beresford and limited us to one cutting at Highmore. The trial planted in 2004 at Brookings suffered severe winter injury and death due to ice, thus yields were not taken from this location.

Contact Information

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SOUTH DAKOTA ALFALFA VARIETY TRIAL

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

Planting Date: 29 April 2006

Experimental Design: Randomized complete block with five replicates

Irrigated Trial

Entry	2006			
	7-Jul	4-Aug	1-Sep	Total
	Tons DM/Acre			
Mustang 420	1.46	1.77	0.84	4.06
6415	1.48	1.69	0.88	4.06
4A421	1.45	1.67	0.94	4.05
TS 4027	1.44	1.70	0.89	4.03
Meadowlark	1.45	1.68	0.87	4.00
54V46	1.35	1.73	0.89	3.97
Bob White	1.38	1.68	0.89	3.95
Oriole	1.51	1.61	0.83	3.95
6443 RR	1.26	1.81	0.82	3.90
53Q30	1.38	1.68	0.82	3.88
Melton	1.48	1.63	0.77	3.87
DKA 41-18RR	1.31	1.67	0.83	3.82
WL 355	1.26	1.70	0.83	3.79
Genoa	1.25	1.65	0.89	3.78
DKA 34-17RR	1.32	1.65	0.81	3.78
4G418 RR	1.26	1.68	0.83	3.77
Blue Bird HR	1.33	1.59	0.83	3.74
Shaw	1.29	1.62	0.82	3.73
Vernal	1.38	1.60	0.74	3.71
A4440	1.38	1.48	0.80	3.66
WL 343	1.20	1.59	0.81	3.59
Average	1.36	1.66	0.84	3.86
Maturity (Kalu & Fick)	4.2	3.4	3.3	
LSD (P=0.10)	0.16	NS	0.08	NS
CV (%)	11.0	8.3	9.5	7.3
P-value	0.031	0.214	0.050	0.261

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
Irrigated Trial

Entry	2006				2005 Total	2-year Total
	31-May	25-Jul	29-Aug	Total		
	Tons DM/Acre					
Escalade	1.68	2.88	1.50	6.05	1.72	7.77
Mountaineer 2.0	1.76	2.75	1.46	5.97	1.58	7.54
6400 HT	1.70	2.72	1.46	5.88	1.44	7.32
Rebound 5.0	1.77	2.15	1.26	5.18	1.54	6.72
LegenDairy 5.0	1.50	2.36	1.24	5.11	1.52	6.62
4A421	1.67	2.12	1.27	5.06	1.51	6.57
Integrity	1.63	2.08	1.14	4.84	1.61	6.45
WL 357HQ	1.58	1.94	1.17	4.68	1.23	5.91
Vernal	1.52	1.61	1.23	4.36	1.38	5.74
54V46	1.49	1.80	1.01	4.30	1.36	5.66
WL 335HQ	1.40	1.75	1.02	4.17	1.05	5.22
HybriForce 400	1.42	1.35	1.00	3.77	0.87	4.63
Average	1.59	2.13	1.23	4.95	1.40	6.35
Maturity (Kalu & Fick)	4.2	6.6	3.9			
LSD (P=0.10)	NS	NS	NS	NS	NS	NS
CV (%)	14.2	49.3	27.6	30.7	32.4	30.4
P-value	0.296	0.608	0.394	0.502	0.353	0.492

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

Dryland Trial

Entry	2006				2005 Total	2004 Total	2003 Total	4-year Total
	18-May	17-Jun	12-Jul	Total				
	Tons DM/Acre							
FSG 406	2.12	1.59	0.52	4.22	5.53	6.75	2.37	18.88
6420	2.27	1.45	0.51	4.23	5.34	6.55	2.64	18.76
Alfastar II	1.99	1.33	0.47	3.80	5.29	7.12	2.53	18.73
54V46	2.29	1.40	0.44	4.13	5.52	6.25	2.50	18.40
Abundance	2.47	1.09	0.33	3.89	5.80	6.33	2.18	18.20
Somerset	2.12	1.28	0.41	3.80	5.45	6.53	2.34	18.13
Extreme	2.20	1.13	0.40	3.73	5.69	6.32	2.37	18.12
Evermore	2.17	1.03	0.26	3.46	5.21	6.71	2.51	17.90
Rebel	2.13	1.29	0.40	3.83	5.47	6.08	2.49	17.87
FSG 351	2.19	1.30	0.40	3.90	5.06	6.32	2.33	17.60
WL 319HQ	2.32	0.86	0.20	3.38	5.73	6.15	2.32	17.58
54Q25	2.08	1.10	0.34	3.53	5.05	6.41	2.45	17.43
A 30-06	2.07	1.09	0.24	3.40	5.14	6.40	2.47	17.41
Husky Supreme	2.20	1.02	0.26	3.48	5.27	6.11	2.48	17.34
WL 357HQ	2.16	0.98	0.27	3.41	5.39	6.16	2.33	17.29
Gold Rush 747	2.13	1.05	0.25	3.43	4.93	6.47	2.44	17.27
420	2.06	1.26	0.35	3.67	4.75	6.46	2.35	17.23
FSG 505	2.11	1.19	0.31	3.60	5.07	6.20	2.28	17.15
Hybriforce-420/Wet	2.19	1.11	0.30	3.60	5.09	5.90	2.50	17.09
Rugged	1.98	1.17	0.37	3.52	4.72	6.02	2.60	16.87
Journey 204 Hyb. Alf.	2.11	0.98	0.30	3.39	4.93	6.11	2.42	16.84
Bullseye	1.95	0.89	0.22	3.06	4.63	6.27	2.71	16.66
Notice II	2.23	1.01	0.25	3.49	4.79	6.07	2.20	16.55
4500	1.90	1.01	0.29	3.19	4.92	5.99	2.23	16.33
Vernal	1.90	0.92	0.18	3.00	4.54	6.32	2.44	16.30
Average	2.13	1.14	0.33	3.61	5.17	6.32	2.42	17.52
Maturity (Kalu & Fick)								
LSD (P=0.10)	0.22	0.33	NS	0.57	NS	NS	NS	NS
CV (%)	10.9	30.1	60.8	16.5	15.9	11.8	12.3	11.1
P-value	0.010	0.033	0.163	0.028	0.368	0.714	0.285	0.648

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

Dryland Trial

Entry	2006				2005 Total	2-year Total
	18-May	17-Jun	12-Jul	Total		
	Tons DM/Acre					
4S419	2.59	1.82	0.95	5.36	1.51	6.87
6400 HT	2.43	1.71	0.93	5.08	1.61	6.68
Genoa	2.38	1.78	1.00	5.16	1.34	6.51
54V46	2.31	1.73	0.95	5.00	1.49	6.49
Meadowlark	2.43	1.71	0.88	5.02	1.41	6.43
FSG 408DP	2.38	1.73	0.82	4.93	1.43	6.36
Marvel	2.31	1.78	0.91	5.01	1.29	6.29
Integrity	2.35	1.78	0.86	4.99	1.29	6.28
WL 357HQ	2.32	1.63	0.95	4.91	1.32	6.23
6415	2.24	1.68	0.88	4.80	1.36	6.16
4A421	2.35	1.68	0.92	4.94	1.09	6.03
Escalade	2.29	1.58	0.85	4.71	1.31	6.02
Vernal	2.45	1.49	0.76	4.70	1.31	6.00
361 HY	2.43	1.60	0.83	4.87	1.11	5.98
54H91	2.47	1.42	0.70	4.58	1.38	5.97
Average	2.38	1.67	0.88	4.94	1.35	6.29
Maturity (Kalu & Fick)	3.4	4.2	4.4			
LSD (P=0.10)	NS	0.21	0.13	NS	0.25	NS
CV (%)	8.4	13.1	14.9	9.2	19.3	10.4
P-value	0.332	0.097	0.013	0.376	0.098	0.414

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

Dryland Trial

Entry	2006	2005	2004	2003	4-year
	31-May	Total	Total	Total	Total
Tons DM/acre					
Released cultivars					
A 30-06	2.08	2.96	4.75	1.03	10.82
DKA 42-15	1.91	3.07	4.18	1.07	10.23
WL 319 HQ	1.81	2.98	4.24	0.86	9.89
Hybriforce 400	1.69	2.98	4.04	1.17	9.87
Hybriforce 420 Wet	1.90	2.91	3.83	1.23	9.87
Vernal	1.73	2.97	4.19	0.93	9.82
Journey Brand 204 Hyb.	1.78	2.95	4.03	1.04	9.79
Notice II	1.68	2.85	3.99	1.04	9.56
Somerset	1.54	2.97	3.82	1.22	9.54
Husky Supreme	1.71	2.79	3.89	1.13	9.53
54V54	1.70	2.90	3.92	0.98	9.49
WL 357 HQ	1.44	3.03	3.77	1.15	9.39
Maverick	1.40	2.96	3.87	1.05	9.28
Setter	1.46	2.64	3.58	1.21	8.89
Alfatar II	1.24	2.45	3.93	1.18	8.80
Gold Rush 747	1.17	2.67	3.71	1.11	8.66
Multiplier 3	1.65	2.38	3.43	1.13	8.59
FK 421	1.16	2.46	3.40	1.15	8.17
Average	1.61	2.83	3.92	1.09	9.46
Maturity (Kalu & Fick)	4.4				
LSD (P=0.10)	NS	0.20	NS	NS	NS
CV (%)	39.9	14.7	19.9	19.7	15.5
P-value	0.506	0.075	0.499	0.194	0.312
Experimental strains					
CW 04030	1.89	3.15	4.38	1.11	10.52
CW 14026	1.87	3.09	4.31	1.07	10.34
CW 04022	2.05	3.05	4.08	0.99	10.17
CW 94025	1.91	2.96	4.04	0.83	9.73
CW 83010	1.64	2.95	4.04	0.98	9.60
CW 04027	1.64	2.75	4.09	1.08	9.56
CW 03019	1.45	2.73	4.25	0.91	9.34
CW 94023	1.46	2.66	4.26	0.91	9.29
CW 93013	1.14	2.57	3.69	1.10	8.50
Average	1.67	2.88	4.13	1.00	9.67
Maturity (Kalu & Fick)	4.4				
LSD (P=0.10)	NS	NS	NS	NS	NS
CV (%)	34.2	14.5	16.3	20.2	13.7
P-value	0.179	0.202	0.797	0.216	0.265

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
Dryland Trial

Entry	2006 31-May	2005 Total	2-year Total
Tons DM/Acre			
361 HY	2.26	1.56	3.81
Mountaineer 2.0	1.99	1.68	3.67
6400 HT	2.02	1.61	3.64
Vernal	2.05	1.57	3.62
Labrador	1.97	1.64	3.61
4A421	2.02	1.57	3.59
Rebound 5.0	1.83	1.55	3.38
54V46	1.96	1.32	3.28
LegenDairy 5.0	1.79	1.43	3.21
Integrity	1.83	1.22	3.05
WL 335HQ	1.80	1.23	3.03
Average	1.94	1.51	3.44
Maturity (Kalu & Fick)	4.2		
LSD (P=0.05)	NS	NS	NS
CV (%)	17.7	27.9	16.9
P-value	0.356	0.466	0.348

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

Dryland Trial

	2006				2005	2-year
	8-Jun	8-Jul	11-Aug	Total	Total	Total
	Tons Dry Matter/Acre					
6200 HT	2.19	1.32	0.81	4.32	5.37	9.69
54Q25	2.15	1.26	0.83	4.24	5.24	9.47
WL 319HQ	2.07	1.28	0.76	4.12	5.35	9.46
54H91	2.28	1.29	0.65	4.21	5.19	9.40
54V46	2.06	1.41	0.86	4.34	5.00	9.34
ProSeed-381 Hyb	1.98	1.28	0.77	4.03	5.24	9.27
eXtreme	2.00	1.16	0.77	3.93	5.31	9.23
HybriForce 420/wet	2.03	1.24	0.70	3.98	5.19	9.17
WL 348AP	2.03	1.27	0.68	3.99	5.10	9.09
6415	1.93	1.26	0.74	3.93	4.97	8.90
Vernal	2.05	1.14	0.62	3.81	4.96	8.77
GH 711	1.86	1.17	0.64	3.67	4.99	8.67
Average	2.05	1.26	0.74	4.05	5.16	9.20
Maturity (Kalu & Fick)	5.1	3.9	5.1			
LSD (P=0.10)	NS	NS	NS	NS	NS	NS
CV (%)	16.0	16.4	28.6	16.6	11.1	13.0
P-value	0.717	0.645	0.602	0.850	0.942	0.955

NS = not significant at 0.10 level of probability

50 lbs P2O5/Acre - preplant

Treflan applied preplant