Table 1 2013 Yield of 2008 Montana Intrastate Alfalfa Yield Trial on dryland.
Exp 08IAYT Central Agricultural Research Center. Moccasin Montana

Cultivar	MT-ID#	2009	2010	2011	2012	2013	1st Cut 2014	2nd Cut 2014	Total 2014	6 Year Total
		t/a	t/a	t/a	t/a	t/a	t/a	t/a	t/a	t/a
Rebound 5.0	MT-398	1.47	3.38	2.12	1.18	1.88	0.97	0.81	1.78	11.79
DKA43-13	MT-413	1.24	2.76	2.07	0.96	1.63	1.05	0.83	1.88	10.54
54V09	MT-414	1.44	3.61	2.27	1.09	1.71	1.19	0.83	2.03	12.13
FSG 229CR	MT-415	1.80	3.42	2.29	1.18	1.80	1.05	1.11	2.16	12.64
FSG 429SN	MT-416	1.90	3.43	2.30	1.10	1.80	0.90	1.25	2.15	12.68
FSG 408DP	MT-417	1.59	3.50	2.17	1.09	1.69	1.22	1.07	2.29	12.34
Ladak 65	MT-2	1.49	3.24	2.04	1.14	1.75	1.00	1.02	2.02	11.68
Melton	MT-338	1.65	3.65	2.11	1.25	1.83	1.16	0.99	2.15	12.63
Shaw	MT-328	1.49	3.98	2.06	1.14	1.65	1.13	0.90	2.03	12.33
Mean		1.561	3.44	2.158	1.124	1.747	1.074	0.977	2.051	12.080
P value		0.45	0.00	0.17	0.51	0.22	0.02	0.37	0.24	0.01
CV 1		25.1	9.5	7.6	14.6	8.1	12.2	28.3	12.8	6.0
LSD(0.05)		0.573	0.479	0.239	0.240	0.206	0.1907	0.4038	0.3827	1.062
Seeded:	23-Apr-08	Soils: Shallow loam (2-3 ft) over gravel								
Harvest Date:		6-Jul-09	7-Jul-10	8-Jul-11	23-Jun	26-Jun	7-Jul	17-Oct		
Fertilizer:		No fertilizer	33-52-0-24	0	45N	20-20-20-10	20-20-20-10			
Crop Year Precip.:		10.82"	17.65"	21.64"	10.99"	12.90"	21.63"			95.63"

Comment: Dry conditions persisted through the June 2011 to Mid-May 2013 period. Above average precipitation was received in Sep.-Oct 2013 [5.37" vs 2.29"] and Aug.-Sep. 2014 [9.06" vs 3.09"]. Frost was received on five consecutive nights, Sep10-14, with a low of 28 Sept 11. Alfalfa grew robustly till Nov. 3 when temp dropped to 23°F.

Table 2 2013 Yield of 2010 Montana Intrastate Alfalfa Yield Trial on Dryland.
Exp:10IAYT Central Agricultural Research Center. Moccasin, Montana.

Entry Name	MT ID	entry	2010	2011	2012	2013	1st Cut 2014	2nd Cut 2014	Total 2014	6 Year Total
			t/a	t/a	t/a	t/a	t/a	t/a	t/a	t/a
PGI 427	MT-421	1	0.58	2.36	1.25	1.68	0.81	1.18	1.98	7.85
TS 4002	MT-422	2	0.64	2.18	1.23	1.65	0.80	1.21	2.01	7.72
FSG 329	MT-423	3	0.60	2.20	1.27	1.66	0.76	1.11	1.87	7.60
6422Q	MT-424	4	0.50	1.96	1.05	1.40	0.67	1.08	1.75	6.67
Shaw	MT328	5	0.65	2.18	1.31	1.69	0.85	1.21	2.06	7.88
WL 343HQ	MT425	6	0.58	2.11	1.02	1.50	0.71	1.12	1.83	7.05
DG 4210	MT-426	7	0.50	2.09	1.01	1.56	0.74	1.06	1.79	6.95
Ladak 65	MT-2	8	0.32	2.05	1.19	1.75	0.78	1.10	1.88	7.19
8400	MT-427	9	0.46	1.81	1.01	1.62	0.72	1.02	1.74	6.64
BY812-T	MT-428	10	0.60	2.24	1.43	1.69	0.89	1.34	2.24	8.20
Melton	MT-338	11	0.55	2.19	1.23	1.79	0.85	1.17	2.01	7.77
Mean			0.544	2.124	1.182	1.636	0.780	1.144	1.924	7.410
P-value			0.01	0.15	0.00	0.03	0.00	0.00	0.00	0.00
CV 1			19.5	11.0	8.6	8.8	8.2	9.2	6.7	6.9
LSD(0.05)			0.15	0.339	0.147	0.208	0.093	0.152	0.186	0.743
Seed date:	22-Apr-10	Soils:	Judith clay loam							
Harvest Date:			2-Aug	8-Jul	23-Jun	26-Jun	7-Jul	17-Oct		
Fertilizer:			33-52-0-24		45-0-0	20-20-20-10	20-20-20-10			
Crop Year Precipitation:			17.65"	21.64"	10.99"	12.90"	21.63"			84.81"

Comment: Dry conditions persisted through the June 2011 to Mid-May 2013 period. Above average precipitation was received in Sep.-Oct 2013 [5.37" vs 2.29"] and Aug.-Sep. 2014 [9.06" vs 3.09"]. Frost was received on five consecutive nights, Sep10-14, with a low of 28 Sept 11. Alfalfa grew robustly till Nov. 3 when temp dropped to 23°F.

Table 3 **2014 Performance of 2013 Montana Intratstate Alfalfa Yield Trial.**
14IAYR13 **Central Agricultural Research Center. Moccasin, Montana**

Code	Entry	26-Jun Height	7-Jul 1st Cut	17-Oct Height	17-Oct 2nd cut	2014 Total
		cm	t/a	cm	t/a	t/a
13MT1	9111MF	48	1.23	33	0.94	2.17
13MT2	Matrix	49	1.24	35	0.95	2.20
13MT3	Ameristand 201T	54	1.32	42	0.86	2.18
13MT4	Amerstand 445NT	52	1.12	39	0.91	2.03
13MT5	DG 4210	50	1.03	39	0.92	1.95
13MT6	55Q27	54	1.17	40	0.86	2.03
13MT7	55VR05	52	1.08	37	1.02	2.10
13MT8	Ladak 65 Check	55	1.24	36	0.89	2.13
13MT9	Shaw Check	53	1.32	44	1.06	2.37
13MT10	Cooper Check	58	1.36	42	0.93	2.29
13MT11	PGI 212	47	1.13	40	0.93	2.05
13MT12	Ladak II	55	1.32	39	0.91	2.23
13MT13	FSG423ST	54	1.26	25	0.89	2.15
13MT14	Ladak DL	51	1.27	39	0.90	2.16
13MT15	Ladak DL 5 Star	50	1.48	36	0.97	2.45
13MT16	Venus 4 + T	52	1.19	39	0.97	2.16
13MT17	IS-1035	52	1.08	39	0.88	1.96
13MT18	Baracade SLT	53	1.21	48	0.96	2.17
Mean		52.0	1.224	38.36	0.929	2.153
CV 1			11.5		13.0	9.2
LSD(0.05 by t)			0.200		0.171	0.281

Seed date: 23-Apr-13 **No-till into barly stubble. 10+10+10+ 5 w/seed**
Harvest Date: 7-Jul 17-Oct
Fertilizer: None applied post plant 2013 or 201 **Herbicide:** 2013 mid-April glyphosate, 2014 March paraquat,
Crop Year Precipitation: 12.90" 21.63" 34.53"

Comment: Dry conditions persisted through the June 2011 to Mid-May 2013 period. Above average precipitation was received in Sep.-Oct 2013 [5.37" vs 2.29"] and Aug.-Sep. 2014 [9.06" vs 3.09"]. Frost was received on five consecutive nights, Sep10-14, with a low of 28 Sept 11. Alfalfa grew robustly till Nov. 3 when temp dropped to 23^{o}F.

Table 4 2014 Yield Performance of 2013 Montana IntraState Alfalfa Trial
Exp. 14IAYT1309 Southern Agricultural Research Center. Huntley Montana.

		Dry Matter Yields					
Entry	Trt	42152	42187	42213	42305	4Cut Tot	
	#	t/a	t/a	t/a	t/a	t/a	
55Q27	6	2.52	1.45	2.01	1.10	7.08	*
Venus 4 + T	14	2.40	1.10	1.62	1.23	6.16	
Matrix	2	2.02	0.90	1.03	1.03	4.97	
Cooper Check	10	2.37	0.99	1.06	1.25	5.67	
Baracade SLT	16	2.31	1.34	1.52	1.33	6.32	
Ladak II	12	2.34	1.20	1.47	1.31	6.32	
Ladak 65 Check	8	2.43	1.41	1.28	0.92	6.04	
Amerstand 445NT	4	2.63	1.74	1.56	1.03	6.96	*
DG 4210	5	2.54	1.67	1.77	1.34	7.31	*
9111MF	1	2.28	1.05	0.84	1.05	5.21	
Shaw Check	9	2.41	0.97	1.42	1.27	6.07	
FSG423ST	13	2.46	1.17	1.56	1.23	5.99	
IS-1035	15	2.42	0.98	1.61	1.40	6.39	
55VR05	7	2.88	1.71	1.84	1.06	7.47	**
PGI 212	11	2.66	1.28	1.53	1.05	6.53	
Ameristand 201T	3	2.12	1.29	1.36	1.30	6.07	
Mean		2.423	1.265	1.467	1.18	6.285	
P-value		0.47	0.00	0.00	0.05	0.00	
CV1		14.52	16.45	19.09	14.97	7.657	
LSD(0.05 by t)		0.587	0.349	0.467	0.295	0.803	

Table 5 **2014 Yield Performance of 2013 Montana Alfalfa Seed Treat Trial**
Exp. 14IAYT1309 **Southern Agricultural Research Center. Huntley Montana.**

Entry	Trt	28-May	2-Jul	28-Jul	28-Oct	4Cut Tot
		t/a	t/a	t/a	t/a	t/a
Ladak DL	3	2.18	0.83	0.92	0.85	4.77
Ladak DL 5 Star	2	2.04	0.86	1.32	1.11	5.34
Ladak 65 Check	1	1.94	1.04	1.34	1.11	5.42
Mean		2.052	0.910	1.196	1.021	5.175
P-value		0.85	0.10	0.34	0.01	0.43
CV1		22.8	13.9	33.6	8.3	13.2
LSD(0.05 by t)		0.810	0.219	0.695	0.146	1.181

Table 1. Summary of climatic data by months for the 2013-2014 crop year (Sept.– Aug.) and averages for the period 1909-2014. Central Agricultural Research Center, Moccasin, Montana.

	Sept 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	June 2014	July 2014	Aug 2014	Total/Avg.
Precipitation (in.)													
Current Year	3.74	1.57	0.15	0.56	1.14	0.37	1.12	0.64	1.64	2.45	1.47	6.72	21.63
1909-2014 Avg.	1.40	0.92	0.57	0.54	0.55	0.45	0.71	1.20	2.57	3.11	1.67	1.69	15.38
Temperature (^{o}F)													
Current Year	59.7	45.7	32.8	21.4	28.0	14.5	27.9	38.0	50.6	55.3	68.2	65.3	42.3
1911-2014 Avg.	54.8	44.8	32.9	24.8	21.7	24.6	30.5	40.8	50.1	57.8	65.9	64.9	42.8

2014 Frost and Minimum/Maximum temperatures

Last killing frost [1/] in Spring	
2014	May13 (29^{o}F)
1909-2014 Avg.	May 27
First killing frost [1/] in Fall	
2014	Sept.10 (31^{o}F)
1909-2014 Avg.	September 15
Frost free period	
2014	120 days
1909-2014 Avg.	111 days
Maximum summer temp.	97^{o}F –Aug 13, 2014
Minimum winter temp.	-31^{o}F –Feb 6, 2014

[1/] In this summary 32^{o}F is considered a killing frost.

Monthly Weather Report~Central Agricultural Research Center~ Moccasin, MT January -December 2014

Multi-Month Means Report

MONTH	**Temp** Mean	**Precip** Totals	**Precip** Totals 104y Ave.	**Wind** mph	**High** Wind **Gust**	**Snow** Totals	**GDU** Wheat Totals	**Pan** Evap. inch	**Soil Temperature** **Sod** 4 inch	**Bare** 4 inch	**Bare** 8 inch	**Bare** 20 inch
January	28.0	1.14	0.55	6.8	57.8	22.3	nR	nR	34.2	35.5	32.6	34.4
February	14.5	0.37	0.45	7.0	55.6	10.0	nR	nR	33.0	30.2	31.5	33.4
March	27.9	1.12	0.71	6.8	40.3	17.3	nR	nR	35.7	33.8	33.5	33.1
April	38.0	0.64	1.20	7.5	46.7	2.8	217	3.9	45.3	44.4	43.2	39.2
May	50.6	1.64	2.57	5.8	32.9	0.0	567	6.7	55.6	55.5	53.9	47.7
June	55.3	2.45	3.11	4.9	37.2	0.0	678	5.9	64.1	62.7	53.9	55.2
July	68.2	1.47	1.67	5.3	36.6	0.0	925	10.4	73.1	75.0	71.8	62.0
August	65.3	6.72	1.69	4.7	34.0	0.0	845	7.9	71.6	71.7	70.7	64.2
September	55.2	2.34	1.40	5.3	35.6	1.8	642	7.9	61.1	60.6	60.8	58.4
October	50.0	0.65	0.92	6.0	37.9	0.5	565	nR	52.3	51.1	52.2	52.9
November	27.0	0.45	0.57	6.2	46.9	6.3	205	nR	40.8	41.9	41.4	45.2
December	28.8	0.35	0.54	5.9	42.1	7.5	183	nR	34.8	37.1	36.5	38.6
Mean	42.4	1.6	1.3	6.0	42.0	5.7	536.2	7.1	50.1	50.0	48.5	47.0
Total		19.3	15.4	4395		68.4	4825.7	42.8				

nR: not recorded due to freezing temperatures or soil too cold for sustained plant growth

Summary of climatic data by months for the 2013-2014 cropping year (September-August) compared to averages for the period of record from 1911 to 2013 at the Southern Agricultural Research Center near Huntley, Montana.

	2013				2014								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Year
Precipitation (inches)													Total
Current Year (2013-2014)	2.94	1.87	0.22	1.36	0.64	1.14	0.87	0.87	1.87	2.39	0.38	3.33	17.88
Average (1911-2013)	1.30	1.08	0.64	0.59	0.55	0.46	0.79	1.35	2.20	2.33	1.17	0.94	13.38
Difference	+1.64	+0.80	-0.42	+0.77	+0.09	+0.68	+0.08	-0.48	-0.33	+0.06	-0.79	+2.39	+4.50
Mean Temperature (ºF)													Average
Current Year (2013-2014)	63.3	43.5	33.3	18.8	28.4	19.5	31.5	45.7	55.4	61.4	70.6	69.1	45.0
Average (1911-2013)	58.1	46.9	33.6	23.8	20.8	25.7	34.1	45.4	54.9	63.3	70.7	68.6	45.5
Difference	+5.3	-3.4	-0.3	-5.0	+7.6	-6.2	-2.6	+0.3	+0.5	-1.9	-0.1	+0.5	-0.5

Last Killing Frost in Spring[1/]
2014 ..... 30 ºF on May 9, 2014
Average (1911-2013) ..... May 17

First Killing Frost in the Fall[1/]
2014 ..... 25 ºF on September 12, 2014
Average (1911-2013) ..... September 19

Frost-free Period
2014 ..... 126 days
Average (1911-2013) ..... 125 days

Growing Degree Days (Base 50)[2/]
2014 ..... 1,878 GDD (ºF)
Average (1911-2013) ..... 1,903 GDD (ºF)

Growing Degree Days (Base Corn)[2/]
2014 ..... 1,905 GDD (ºF)
Average (1911-2013) ..... . 2,007 GDD (ºF)

Maximum Summer Temperature
98 ºF on Aug 13, 2014

Minimum Winter Temperature
-31 ºF on Dec 7, 2013

1/ 32 ºF is considered a killing frost. Average last and first killing frost dates are calculated on a 50% probability of a minimum temperature occurring below the threshold temperature of 32.5 ºF based on observations from 1911 to 2013.

2/ Growing degree days calculated from temperatures observed during the frost free period from May 9 through September 12, 2014, and for the same 126 day interval from the period of record of 1911 to 2013.