Peace Region Grass Seed Testing Program

Coordinated by:

Peace Region Forage Seed Association
Agriculture and Agri-Food Canada

2014 Report

Compiled by: Rahman Azooz and Talon Johnson

Sites in: Beaverlodge Alberta

Table of content for 2014 growing season

Acknowledgments:

We thank the following companies and agencies for their seed entries and sponsorship of our 2014 research endeavors:

Barenbrug USA

BrettYoung

Crop Production Services

Foster's Seed and Feed LTD

Imperial Seed

Moore Seed Processors

DLF Pickseed Canada

SeCan

Snow Brand Seeds

The following groups and agencies are also thanked for cooperating with the program and managing the research sites:

Peace Region Forage Seed Association

Agriculture and Agri-Food Canada

Alberta Agriculture and Rural Development

We thank the following for their partnership and technical assistance:

Calvin Yoder, Alberta Agriculture

Shirley Neighbour, Agriculture and Agri-Food Canada

We especially appreciate the collaboration and support provided by the Peace River Forage Association of BC.

PRGST Co-operating Research Sites and Contacts

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Protocol for Peace Region Grass Seed Testing Program (PRGST)

Revised December 2014

1. Research Sponsorship

The research sponsorship of **$240 CAN/entry/year/location** is requested on an annual basis, as years of production will vary with the species being tested, and applies to the establishment year as well. The Peace Region Forage Seed Association will administer funds for the Peace Region Grass Seed Testing Program. The PRFSA General Manager will invoice each seed company annually.

2. Eligibility of Entries

Released and experimental lines of all tame and native grass species will be considered if they are of interest to commercial seed companies. We reserve the right not to initiate tests:

- if seed arrives late

- if there is lack of space in any year at a particular location

- if there are too few entries in any year for a particular location

- if the germination % of the forage crop seed less than 75%

3. Seed Requirements and Deadline for Seed Entry

The applicant will provide for **EACH TEST LOCATION**:

- 50 gm of bentgrass, Kentucky bluegrass or timothy

- 100 gm of orchardgrass; creeping red, chewings, hard, meadow, sheep or tall fescue; annual or perennial ryegrass

- 200 gm of meadow or smooth bromegrass, wheatgrasses

-The germination % of each variety

Approved seed entries shall supply seed by **April 15** of the establishment year and **will include the percent germination and relative maturity** (early, medium or late) of each variety. Please indicate whether the submission is **a forage or turf type**.

Please ship approved seed to*:
Peace Region Forage Seed Association
904 102 Ave
Dawson Creek, BC V1G 2B7

*European companies submitting entries need to ship their seed to their US or Canadian head office then to the PRFSA. Seed shipped from the US to Canada needs to be accompanied by all phytosanitation paperwork to clear customs.

4. Use of Seed
Seed submitted will only be used to establish the agreed upon trials. The seed will **NOT** be used for increase, selection or distribution.

Peace Region Grass Seed Testing (PRGST) Program

2015 Application for Entry

1. Company: _____ Telephone: _____

Contact person: _____ Fax: _____

Mailing address: _____ Email: _____

_____
_____

Species		**Type Forage or turf**		**Variety name/code**		**% Germ**		**Relative maturity** early, medium, late

Send no later than April 1, 2014 to:

Rahman Azooz
Seed Production Program
Agriculture and Agri-Food Canada
Box 29, Beaverlodge, AB. T0H 0C0
Phone (780) 354-5114
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Email : azoozr@agr.gc.ca

Introduction:

The Peace Region Grass seed testing (PRGST) trials were conducted at Beaverlodge, AB (lat. 55°12'N) in 2011, 2012, 2013 and 2014. The PRGST trials were conducted to evaluate the agronomic performance of proprietary species and varieties of U.S. and European companies with the primary objectives to evaluate the performance of forage grass varieties for their potential and adaptability for contract seed production in western Canada. These cultivars are mainly developed outside of Canada and must be tested under Canadian conditions for seed yield and adaptability. The seed yield result of the cultivars under the PRGST trials are used to establish contacts between seed companies and growers. Agronomy practices including stand establishment, integrated weed control, fertility and removal of stands with direct seeding must be developed to ensure consistent seed yield production at economical costs of production. The main objectives of forage grass seed varieties testing trail are to increase the consistency, quality and marketability of turf and forage grass seed in an internationally important growing region and to increase the opportunities for contract seed production of American and European turf and forage seed cultivars and to generate seed yield data for varieties grown at regional sites under local growing conditions. Ultimately, all included varieties that perform well are directed for domestic and international markets

MATERIALS AND METHODS

The trials of PRGST were conducted at Beaverlodge, AB. The trials highlighted here were established in 2011, 2012 and 2013. Timothy (Phleum pratense L.), creeping red fescue (Festuca rubra L. var. rubra), meadow fescue (Festuca pratensis Huds.), tall fescue (Festuca arundinacea), smooth bromegrass (Bromus inermis Leyss) and meadow bromegrass (Bromus biebersteinii) varieties were tested for their agronomic performance and seed production potential under the peace region soil and weather conditions. The varieties in the trials were evaluated according to their agronomic performance that required two harvested years of seed production for fine fescue and three harvested years of seed production of tall fescue, meadow fescue and timothy and bromegrass. The forage grass varieties and the checks included in the trials were obtained from Canadian and international seed companies and their foreign associates. The site at Beaverlodge, AB had been under pea-barley-wheat-Canola rotation before seeding. The trials are direct seeded and fertilizer is applied in the fall according to results from the soil testing laboratory. During the trials, weeds were controlled by a combination of trimming, inter-row cultivation, and recommended herbicides. Individual experimental plots were comprised of four rows, each 6 m long with row spacing of 30 cm apart. The yield was collected from the central two rows. The experimental design for each species was a randomized complete block with four replications.

Timothy trial 2011: Three Moore Seed Processors varieties (Alma, APH1001 and APH1002), four Snow Brand varieties (Horizon, SBT0002, SBT0314 and SBT1005) and three AAFC varieties (BRF LAL1, S9537, S9520) were tested and compared to Climax in 2011. The trials are committed to companies from 2011 to 2014.

Timothy Trial 2012: Timothy varieties were established in 2012 at Beaverlodge. Three Moore Seed Processors varieties (Alma, APH1001 and APH1002), four Snow Brand varieties (Horizon, SBT0002, SBT0314 and SBT1005) and two AAFC varieties (S9537, S9520) were tested and compared to Climax.in 2012. The trials are committed to companies from 2012 to 2015.

Timothy trial 2013: Three Moore Seed Processors timothy varieties (Teuho, Tuukka, Varis) and six Barenbrug USA Timothy varieties (BAR BOO5, BAR D003, BAR 1006, BAR M002, BAR R001, BAR S00) were established in 2013 at Beaverlodge AB site. The new entries were shipped from Netherlands, USA and Debolt, AB Canada for Moore Seed Processors Inc and Barenbrug USA. Each variety was compared to Climax as the check variety. The trials are committed to companies from 2013 to 2016.

Timothy trials 2014: Nine timothy varieties were established in 2014 at Beaverlodge AB site. The new varieties were one Moore Seed Processors (MST0513) and eight, Barenbrug USA varieties (PHL1R99, Bor 01033, Bor 2005, Bor 01025, Bor 88060, Bor 01037, Barpenta and Barfleo). Each variety was compared to Climax as the check variety. The trials are committed to companies from 2014 to 2017.

Fine fescue trial 2012: Fine fescue varieties were established in 2012 at Beaverlodge. Fine fescue varieties are being compared to Boreal as a check variety to test their seed production potential and adaptability in the region. The varieties including in the trial were six Moore Seed Processors varieties (MSE0112, MSM0212, MS00312, MSG0412, MSR0612 and MST0512), two AAFC varieties (BRF B1 and BRF B2) and two Pickseed Canada varieties (SR5250 and Garnet). Each variety was compared to Boreal as the check variety. The trials are committed to companies from 2012 to 2014.

Fine Fescue trial 2013: Two fine fescue varieties were established in 2013 at Beaverlodge AB site. The new entries were one Imperial Seed variety (Reverent) and one Foster Seed and Feed variety (PPG-FRR103). Each variety was compared to Boreal as the check variety. The trials are committed to companies from 2013 to 2015.

Fine fescue 2014: Eleven creeping red fescue varieties were established in 2014 at Beaverlodge AB site. The new entries were 8 Moore Seed Processors varieties (MSU0113, MSK0213, MSB0313, MSR0413, MSP0613, MSP0713, MSP0813, MSP0913 and three Foster Seed and Feed varieties (B-13.0421, B-13.0428 and B-13.0429). Each variety was compared to Boreal as the check variety. The trials are committed to companies from 2014 to 2016.

Meadow Fescue trial 2013: Nine meadow fescue varieties were established in 2013 at Beaverlodge AB site. The new entries were shipped from Romania, Netherlands and USA from the Barenbrug USA Seed Company. The varieties were FP75RO, COSMONAUT, BOR 20613, BOR 20614, 11-FPF12, 11-(09-FPF7), PRADEL, FP75RO1, BARCRYPTO. Each variety was compared to Preval as the check variety. The trials are committed to Barenbrug from 2014 to 2017.

Tall Fescue trial 2013: Two Barenbrug USA tall fescue varieties (BAR FA 9125 and BAR FA 9017) were established in 2013 at Beaverlodge AB site. Each variety was compared to Courtenay as the check variety. The trials are committed to Barenbrug from 2014 to 2017.

Fescue Establishment: Aberdeen trials were established in 2012 at Beaverlodge site. The fescue establishment trial is testing for more effective methods of establishing fine fescues in this region. The seed treatments include Aberdeen seed alone, Aberdeen seed with application of 30 kg P ha-1, Aberdeen coated seed, Aberdeen coated seed with application of 30 kg P ha-1 from BrettYoung Seed Company. The trial is commitment to BrettYoung from 2012 to 2014.

Meadow and Smooth Bromegrass: The varieties were established in 2011 at Beaverlodge. The varieties were being compared to the Fleet (meadow) and Carlton (smooth) as check varieties to test their seed production potential and adaptability in the region. The varieties were: One AAFC variety of hybrid bromegrass (S9478B), two Barenbrug USA (BAR BIF1GRL (smooth) and BAR BcF1FRRL (meadow) varieties, two CPS (AC Knowles (hybrid) and AC Rocket (smooth)) varieties and two SeCan (AC Armada (meadow) and AC Admiral (meadow).

Publication of Results
Data will undergo appropriate statistical analysis and each applicant will be provided with an annual report. Information on varieties will be made available in various annual reports and to seed producers upon request. Results will be posted by the end of the fiscal year on the research page of the website www.peaceforageseed.ca

All reasonable care will be taken to ensure a successful test; however, a guarantee cannot be made that a particular test will be successful. If required a test will be reseeded.

Some results in this report have been tested for one or two harvested years. It is advised not to use average yield figures to make variety comparisons for these years. Only after a minimum of two harvested years of creeping red fescue or three harvested years of timothy, meadow fescue, tall fescue, meadow bromegrass and smooth bromegrass as a recommended years for the test, the data should be considered as 90% reliable. In some cases, data may not be reported due to extreme variations that cannot be accounted for in the statistical design.

Disclaimer
Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement is implied.

Results

Several seed companies (Moore Seed Processors, Secan, CPS, Barenbrug US, Imperial Seed and Foster's Seed and feed) participated in the Peace Region Grass Seed Testing Program (PRGST) and new crops (meadow fescue) were included in the grass seed trials. The seed yield of forage grass varieties trials that established in 2011, 2012 and 2013 have been influenced by drought during the first 3 weeks of May in 2013 and throughout the growing season of 2014 (Figure 1and 2) and the wetter than normal weather condition during June, July and August in 2013 growing season. Lower rainfall than 30 years average during May, June and July in 2014 and dry weather condition in May 2013 slowed crops establishment and early growth under all trials that established in 2013 and 2014 and influence the above dry matter and seed production for the trials that established in 2011 and 2012. The wetter than the normal weather condition may keep upper soil layers near a constant saturation point due to what seemed like continual rain showers in June and July, 2013. The total monthly rainfall was lower by 57% in May, 15% in June, 27% in July and 90% in August, 2014 than the 30-yrs total rainfall average for the same months at Beaverlodge (Figure 1). All crops under all trials, indicating either excess water stress in 2013 or drought stress in 2014 most probably limited seed production response to the varieties potential for seed production and adaptability at Beaverlodge in both 2013 and 2014 growing season. In additional, the seed yields under all forage grass seed crops were damaged by the hail storm that occurred on 20 July, 2013. On average, both seed quality and yield of forage grasses have been affected negatively for the first harvested year in 2013 and for the second harvested year in 2014 growing season. The seed yields of timothy, creeping red fescue, meadow fescue, tall fescue and bromegrass were below the average in 2013 and 2014 as compared to previous years for most forage grass varieties at Beaverlodge, AB. The data for plant height for all trials at Beaverlodge were not reported due to the damage by the hail storm that occurred on 20 July, 2013.

Creeping red fescue: The average seed yield values of creeping red fescue ranged 146 to 980 kg ha^{-1}(130 to 875 lbs $acre^{-1}$) in the first harvested year and ranged 139 to 557 kg ha^{-1}(124 to 497 lbs $acre^{-1}$) in the second harvested

year for the creeping red fescue trial that **established in 2012**. In the creeping red fescue trial that **established in 2013**, the average seed yield values ranged 500 to 838 kg ha^{-1} (447 to 748 lbs acre^{-1}) in the first harvested year in 2014. The average seed yields of creeping red fescue were below the seed yield average in 2013 and 2014 as compared to previous years.

Meadow fescue: The average seed yield values of meadow fescue ranged 768 to 946 kg ha^{-1}(686 to 845 lbs acre^{-1}) in the first harvested year. All new varieties of meadow fescue were mature by one week earlier than the creeping red fescue. The meadow fescue varieties were harvested on 17 July, 2014 and the creeping red fescue varieties were harvested on 23 July, 2014. There are several meadow fescue varieties from Barenbrug USA (FP75RO, 11-09-FPF7, FP75RO1, COSMONAUT and BARCRYPTO) showing some potential for Peace Region growers, in spite of the drier than usual conditions. The average seed yield value of FP75RO (946 kg ha^{-1}(845 lbs acre^{-1})) variety was higher than the seed yield of Preval (909 kg ha-1(812lbs acre-1)) as a check variety for meadow fescue.

Meadow and smooth bromegrass: There were also several meadow and smooth bromegrass varieties showing some potential for Peace Region growers, in spite of the extremely wet (2013) and drier than usual conditions in 2014. The average total seed yield values for the three harvested years (2012, 2013 and 2014) for AC Admiral, AC Armada and BAR BcF1FRRL (meadow bromegrass) varieties ranged from 1622 to 1688 kg ha^{-1}(1445 to 1507 lbs acre^{-1}). These seed yield values were similar or higher than the seed yield value of the check variety, Fleet, (1676 kg ha^{-1}(14967 lbs acre^{-1}) for the meadow bromegrass. The average total seed yield values of the three harvested years for S9478B, AC Knowles (hybrid bromegrass) and AC Rocket (smooth bromegrass) varieties were ranged from 1473 to 1673 kg ha^{-1} (1315 to 1494 lbs acre^{-1}) which were similar or higher than the average seed yield of Carlton (1449 kg ha^{-1} (1294 lbs acre^{-1}) variety as a check variety for the smooth bromegrass. The average seed production of meadow and smooth bromegrass in the second and the third harvested years were below the average seed yield in 2013 and 2014 as compared to previous years.

Timothy trials: There were several timothy varieties showing some potential for Peace Region growers, in spite of the extremely wet (2013) and drier than usual (2014) conditions. In the trial that **established in 2011**, the average total seed yield values of the three harvested years (2012, 2013 and 2014) for Alma, S9520, BRF LAL1, Horizon, APH001, S9537, SBT0314 and APH1002 varieties ranged from 1161 to 1579 kg ha^{-1}(1037 to 1410 lbs acre^{-1}). This is higher or similar than the seed yield values of Climax (1001 kg ha^{-1}(894 lbs acre^{-1})) as a check variety for timothy. In the timothy trial that **established in 2012**, the seed yield for Alma, APH001, Horizon, S9537, S9520 and SBT0314 varieties ranged from 1168 to 1484 kg ha^{-1}(1043 to 1325 lbs acre^{-1}). These seed yield values were higher or similar to the seed yield value of Climax (1160 kg ha^{-1}(1036 lbs acre^{-1})) as a check variety for timothy. In the timothy trial that **established in 2013**, the average seed yield values of two Moore Seed Processors varieties (Teuho and Tuukka) were higher than the seed yield of Climax as a check variety for timothy by 72 to 82 kg ha^{-1}(64 to 73 lbs acre^{-1}) in the first harvested year. The seed yield values for Moore Seed Processors (Teuho and Tuukka) and Barenbrug USA (BAR R001, BAR S004 and BAR D003) varieties ranged from 465 to 525 kg ha^{-1} (425 to 469 lbs acre^{-1}). These seed yield values for the five timothy varieties were higher than the seed yield values of Climax as a check variety for timothy. Under the extremely wetter (2013) or drier (2014) than normal conditions, the seed yields for the timothy trials in 2014 were much better than expected for those established in 2012 and 2013.

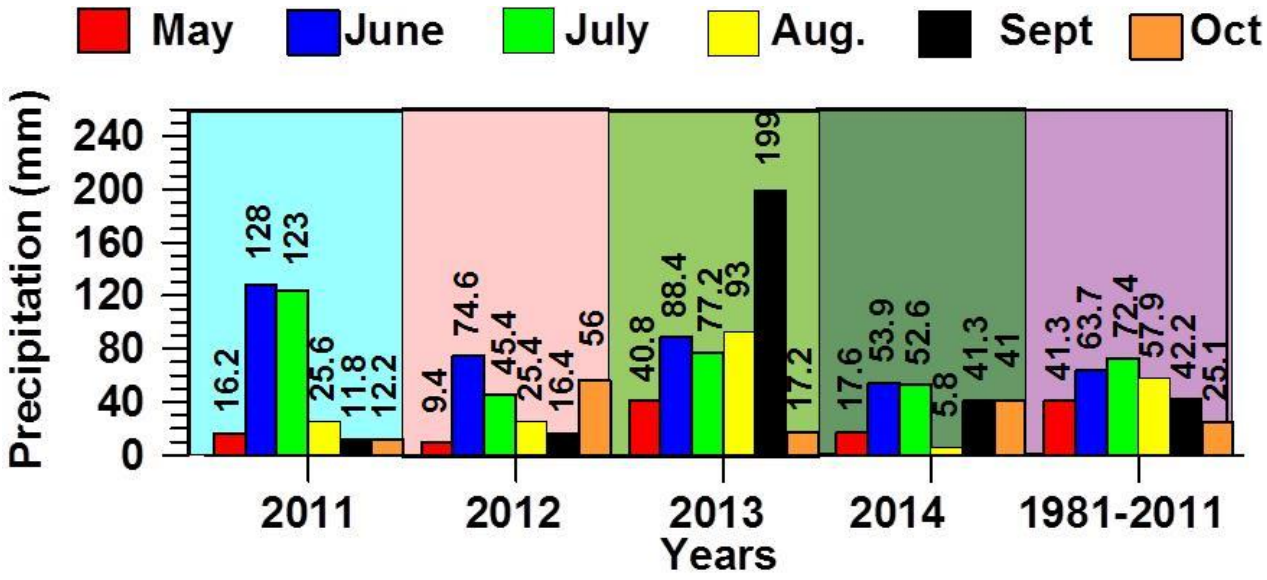

Figure 1. Total monthly rainfall recorded in 2011 to 2014 growing season at Beaverlodge AB.

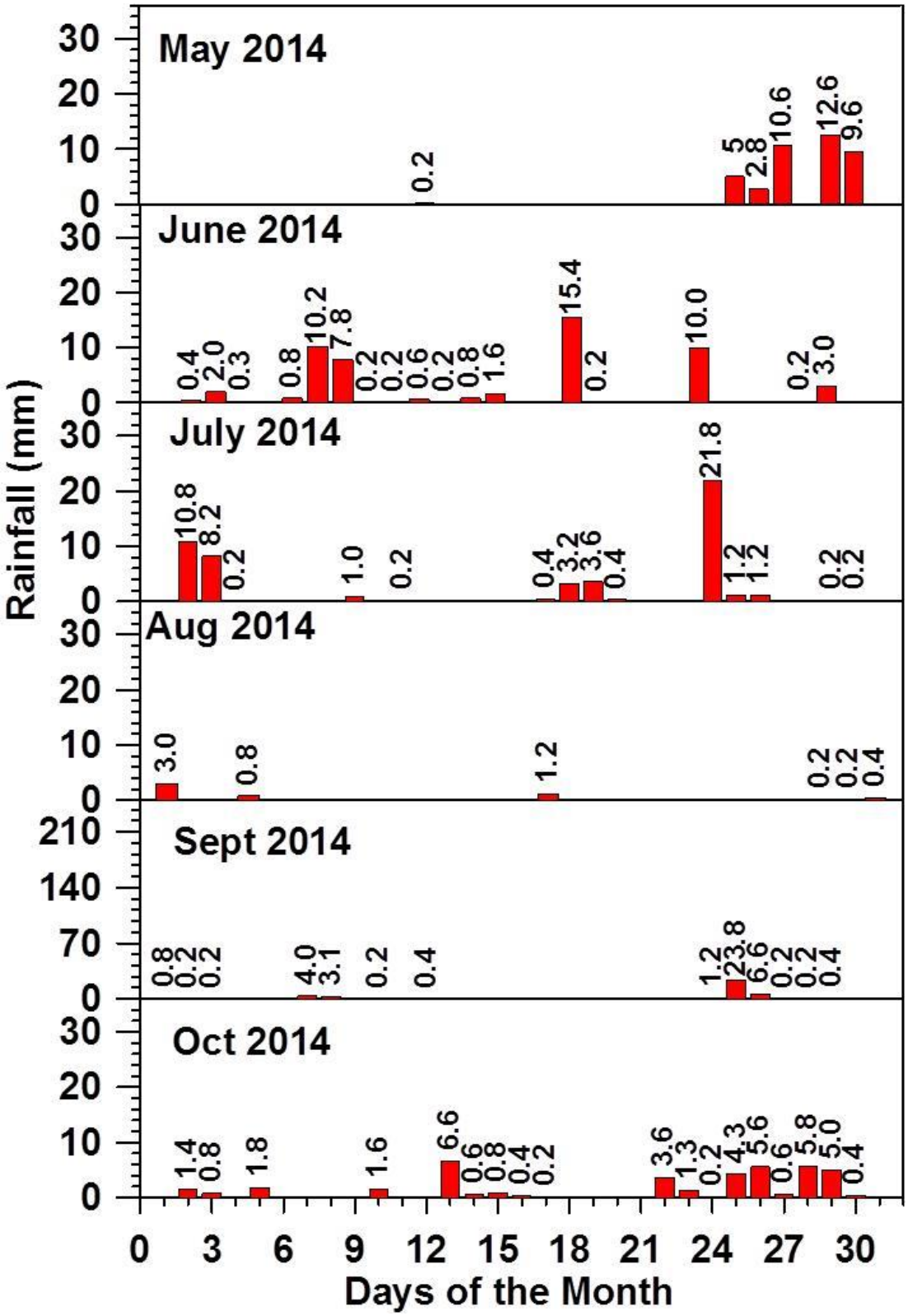

Figure 2. Daily rainfall distribution for 2014 growing season at Beaverlodge AB

Creeping Red Fescue, Meadow Fescue and Tall Fescue Seed Yield Trials:

Table 1. Seed yield in 2013 and 2014 for the fine fescue trials established in 2012 at Beaverlodge, AB

Company	Variety	2013	2014	Total	2013	2014
		kg ha^{-1}			% of Boreal	
Moore Seed Processors	MSE0112	359	162	521	37	34
	MSM0212	298	136	434	30	28
	MS00312	314	218	453	32	45
	MSG0412	398	258	657	41	54
	MST0512	145	139	285	15	29
	MSR0612	476	193	669	49	40
Pickseed	Garnet	244	189	433	25	39
	SR 5250	377	292	669	38	61
AAFC	BRF B1	620	557	1177	63	116
	BRF B2	823	508	1331	84	106
Check	Boreal	980	479	1459	100	100
CV%		37	44	25		
LSD $_{0.05}$		239	180	259		

Seeding date was 16 May 2012 and harvesting date was 24 July 2013 and 23 July 2014.

Table 2. Seed yield in 2014 for the fine fescue trials established in 2013 at Beaverlodge, AB

Company	Variety	2014	2014
		kg ha^{-1}	% of Boreal
Imperial Seed	Reverent	584	70
Foster's Seed	PPG-FRR103	500	60
Check	Boreal	838	100
CV%		9	
LSD $_{0.05}$		127	

Seeding date was 15 May 2013 and harvesting date was 23 July 2014.

Picture1. Creeping red fescue trial at Beaverlodge that established in 2013 and the picture dated on 22 July 2014

Table 3. Seed yield in 2014 for the tall fescue trials established in 2013 at Beaverlodge, AB

Company	Variety	2014	2014
		kg ha^{-1}	% of Courtenay
Barenbrug USA	BAR FA 9125	490	49
	BAR FA 9017	388	39
Check	Courtenay	1006	100
CV%		14	
LSD $_{0.05}$		152	

Seeding date was 15 May 2013 and harvesting date was 11 Aug 2014.

Table 4. Plant height in 2014 for the tall fescue trials established in 2013 at Beaverlodge, AB

Company	Variety	2014
		cm
Barenbrug USA	BAR FA 9125	69
	BAR FA 9017	66
Check	Courtenay	101
CV%		7
LSD $_{0.05}$		9

Picture 2. Tall fescue trial at Beaverlodge that established in 2013 and the picture dated on 22 July 2014.

Table 5. Seed yield in 2014 for the meadow fescue trials established in 2013 at Beaverlodge, AB

Company	Variety	2014	2014
		kg ha^{-1}	% of Preval
Barenbrug USA	FP75RO	946	104
	COSMONAUT	865	95
	BOR 20613	799	88
	BOR 20614	804	88
	11-FPF12	823	91
	11-(09-FPF7)	908	100
	PRADEL	768	84
	FP75RO1	884	97
	BARCRYPTO	834	92
Check	Preval	909	100
CV%		12	
LSD $_{0.05}$		147	

Seeding date was 15 May 2013 and harvesting date was 17 July 2014.

Picture 3. Meadow fescue trial at Beaverlodge that established in 2013 and the picture dated on 4 July 2014.

Picture 4. Meadow fescue trial at Beaverlodge that established 2013 and the picture dated on 22 July 2014.

Table 6. Summary of seed yield (% of Boreal, Courtenay and Preval) in 2013 and 2014 for the fine fescue that established in 2012 and 2013 at Beaverlodge, AB

Seeding	Company	Variety	2013	2014
Fine Fescue Established in 2012 and 2013			% of Boreal	
2012	Moore Seed Processors	MSE0112	37	34
		MSM0212	30	28
		MS00312	32	45
		MSG0412	41	54
		MST0512	15	29
		MSR0612	49	40
	Pickseed	Garnet	25	39
		SR 5250	38	61
	AAFC	BRF B1	63	116
		BRF B2	84	106
	Check	Boreal	100	100
			Seed yield (kg ha^{-1})	
		Boreal	980	479
			2014	2015
2013	Imperial Seed	Reverent	70	
	Foster's Seed	PPG-FRR103	60	
	Check	Boreal	100	
			Seed yield (kg ha^{-1})	
		Boreal	838	
Meadow Fescue Established in 2013			2014	2015
			% of Preval	
2013	Barenbrug USA	FP75RO	104	
		COSMONAUT	95	
		BOR 20613	88	
		BOR 20614	88	
		11-FPF12	91	
		11-(09-FPF7)	100	
		PRADEL	84	
		FP75RO1	97	
		BARCRYPTO	92	
	Check	Preval	100	
			Seed yield (kg ha^{-1})	
		Preval	909	
Tall Fescue Established in 2013			2014	2015
			% of Courtenay	
2013	Barenbrug USA	BAR FA 9125	49	
		BAR FA 9017	39	
	Check	Courtenay	100	
			Seed yield (kg ha^{-1})	
		Courtenay	1006	

Establish Fescue Seed Yield Trials:

Table 7. Seed yield in 2013 and 2014 for seed coated and seed placed phosphate trial using Aberdeen creeping red fescue that established in 2012 at Beaverlodge, AB.

Company	Variety	2013	2014	total	2013	2014
		kg ha^{-1}			% of Aberdeen	
BrettYoung	Aberdeen	328	156	484	100	100
	Aberdeen coated	389	137	526	119	88
	Aberdeen coated+30P	506	190	696	154	122
	Aberdeen+30P	313	146	460	95	94
CV%		15	80	19		
LSD $_{0.05}$		114	250	204		

Seeding date was 15 May 2012 and harvesting date was on 24 July 2013 and 23 July 2014

Meadow and Smooth Bromegrass Seed Yield Trials:

Table 8. Seed yield in 2012, 2013 and 2014 for the bromegrass trials established in 2011 at Beaverlodge, AB

Company	Variety		2012	2013	2014	Total	2012	2013	2014
			kg ha^{-1}				% of Fleet		
SeCan	AC Admiral	Meadow	1318	321	42	1680	105	91	59
SeCan	AC Armada	Meadow	1309	344	36	1689	104	98	50
Barenbrug USA	BAR BcF1FRRL	Meadow	1227	371	24	1622	98	106	34
CPS	AC Knowles	Hybrid	1165	246	62	1473	93	70	86
AAFC	S9478B	Hybrid	1131	337	40	1509	90	96	56
Check	Fleet	Meadow	1254	351	72	1676	100	100	100
							% of Carlton		
AAFC	S9478B	Hybrid	1131	337	40	1509	96	166	63
CPS	AC Knowles	Hybrid	1165	246	62	1473	99	121	96
CPS	AC Rocket	Smooth	1325	248	99	1673	112	122	155
Barenbrug USA	BAR BiF1GRL	Smooth	708	187	36	931	60	92	57
Check	Carlton	Smooth	1181	204	64	1449	100	100	100
CV%			11	41	64	11			
LSD $_{0.05}$			191	181	49	249			

Seeding date was 1 June 2011 and harvesting date was 30 July 2012, 7 August 2013 and 11 August 2014

Table 9. Plant height in 2012, 2013 and 2014 for the bromegrass trials established in 2011 at Beaverlodge, AB

			Beaverlodge		
Company	Variety		2012	2013	2014
				cm	
SeCan	AC Admiral	Meadow	121	-	113
SeCan	AC Armada	Meadow	121	-	106
Barenbrug USA	BAR BcF1FRRL	Meadow	120	-	106
CPS	AC Knowles	Hybrid	119	-	124
AAFC	S9478B	Hybrid	114	-	110
Check	Fleet	Meadow	117	-	106
AAFC	S9478B	Hybrid	114	-	110
CPS	AC Knowles	Hybrid	119	-	124
CPS	AC Rocket	Smooth	111	-	112
Barenbrug USA	BAR BiF1GRL	Smooth	113	-	110
Check	Carlton	Smooth	114	-	118
CV%			4	-	5
LSD $_{0.05}$			7	-	8

Timothy Seed Yield Trials:

Table 10. Seed yield in 2012, 2013 and 2014 for the timothy trials established in 2011 at Beaverlodge, AB

		Seed yield						
Company	Variety	2012	2013	2014	Total	2012	2013	2014
		kg ha^{-1}				% of Climax		
Snow Brand Seed	Horizon	614	412	342	1368	155	138	111
	SBT0002	475	352	215	1043	120	118	70
	SBT0314	513	481	253	1247	130	162	82
	SBT1005	286	225	216	727	72	75	70
Moore Seed Processors	Alma	717	433	429	1579	181	145	140
	APH1001	606	370	375	1350	153	124	122
	APH1002	573	362	226	1161	145	122	74
AAFC	BRF LAL1	666	323	394	1383	169	108	128
	S9537	622	308	348	1279	157	103	113
	S9520	714	465	387	1567	181	156	126
Check	Climax	395	298	308	1001	100	100	100
CV%		12	22	18	10			
LSD $_{0.05}$		95	119	83	179			

Seeding date was on 1 June 2011 and harvesting date was 7 August 2012, 7 August 2013 and 13 August 2014

Table 11. Plant height in 2012, 2013 and 2014 for the timothy trials established in 2011 at Beaverlodge, AB

Company	Variety	Plant height 2012	2013	2014
Snow Brand Seed	Horizon	91	-	102
	SBT0002	92	-	93
	SBT0314	88	-	98
	SBT1005	90	-	97
Moore Seed Processors	Alma	84	-	97
	APH1001	79	-	94
	APH1002	86	-	95
AAFC	BRF LAL1	88	-	97
	S9537	89	-	100
	S9520	89	-	95
Check	Climax	84	-	105
CV%		4	-	8
LSD $_{0.05}$		5	-	11

Table 12. Seed yield in 2013 and 2014 for the timothy trials established in 2012 at Beaverlodge, AB

Company	Variety	2013	2014	Total	2013	2014
		kg ha^{-1}			% of Climax	
Snow Brand Seed	Horizon	715	557	1272	147	83
	SBT0002	548	521	1069	113	77
	SBT0314	596	572	1168	123	85
	SBT1005	265	367	632	55	54
Moore Seed Processors	Alma	500	984	1484	103	146
	APH1001	575	768	1343	118	114
	APH1002	338	609	947	70	90
AAFC	S9537	598	687	1285	123	102
	S9520	555	651	1206	114	97
Check	Climax	486	674	1160	100	100
CV%		21	18	16		
LSD $_{0.05}$		160	166	261		

Seeding date was 16 May 2012 and harvesting date was 7 August 2013 and 13 August 2014.

Table 13. Plant height in 2014 for the timothy trials established in 2012 at Beaverlodge, AB

Company	Variety	2013	2014
			cm
Snow Brand Seed	Horizon	-	100
	SBT0002	-	103
	SBT0314	-	106
	SBT1005	-	101
Moore Seed Processors	Alma	-	98
	APH1001	-	99
	APH1002	-	95
AAFC	S9537	-	104
	S9520	-	99
Check	Climax	-	106
CV%			4
LSD $_{0.05}$			6

Table 14. Seed yield in 2014 for the timothy trials established in 2013 at Beaverlodge, AB

Company	Variety	2014	2014
		kg ha^{-1}	% of Boreal
Barenbrug USA	BAR BOO5	437	99
	BAR D003	465	105
	BAR 1006	360	81
	BAR M002	417	94
	BAR R001	497	113
	BAR S004	486	110
Moore Seed Processors	Teuho	525	119
	Tuukka	510	115
	Varis	410	93
Check	Climax	442	100
CV%		19	
LSD $_{0.05}$		123	

Seeding date was 15 May 2013 and harvesting date was 12 August 2014.

Table 15. Plant height in 2014 for the timothy trials established in 2013 at Beaverlodge, AB

Company	Variety	2014
		Cm
Barenbrug USA	BAR BOO5	92
	BAR D003	96
	BAR 1006	89
	BAR M002	91
	BAR R001	91
	BAR S004	95
Moore Seed Processors	Teuho	93
	Tuukka	94
	Varis	89
Check	Climax	95
CV%		5
LSD $_{0.05}$		7

Picture 5. Timothy trial at Beaverlodge that established in 2013 and the picture dated on 4 July 2014.

Table 16. Summary of seed yield (% of Climax) in 2011 to 2013 for the timothy trials established 2010, 2011 and 2012 at Beaverlodge

			2012	2013	2014
			% of Climax		
2011	Snow Brand Seed	Horizon	155	138	111
		SBT0002	120	118	70
		SBT0314	130	162	82
		SBT1005	72	75	70
	Moore Seed Processors	Alma	181	145	140
		APH1001	153	124	122
		APH1002	145	122	74
	AAFC	BRF LAL1	169	108	128
		S9537	157	103	113
		S9520	181	156	126
		Climax	100	100	100
			Seed yield kg ha^{-1}		
	Check	Climax	395	298	308

			2013	2014	2015
			% of Climax		
2012	Snow Brand Seed	Horizon	147	83	
		SBT0002	113	77	
		SBT0314	123	85	
		SBT1005	55	54	
	Moore Seed Processors	Alma	103	146	
		APH1001	118	114	
		APH1002	70	90	
	AAFC	S9537	123	102	
		S9520	114	97	
	Check	Climax	100	100	
			Seed yield kg ha^{-1}		
		Climax	486	674	

			2014	2015	2016
			% of Climax		
2013	Barenbrug USA	BAR BOO5	99		
		BAR D003	105		
		BAR 1006	81		
		BAR M002	94		
		BAR R001	113		
		BAR S004	110		
	Moore Seed Processors	Teuho	119		
		Tuukka	115		
		Varis	93		
	Check	Climax	100		
			Seed yield kg ha^{-1}		
		Climax	442		