



# Saskatchewan Forage Variety Demonstration Trial 2017-2020 report



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## 1. Funding Partners

- The first two years of the project were funded by the Saskatchewan Ministry of Agriculture's Agricultural Demonstration of Practices and Technologies (ADOPT) program under the Canada-Saskatchewan Growing Forward Agreement. The final two years were funded through the Ministries Strategic Field Program under the Canada Agriculture Partnerships Agreement.
- Industry support for this project included: Ducks Unlimited Canada, Saskatchewan Cattlemen's Association, Saskatchewan Forage Seed Development Commission, SaskMilk, BrettYoung Seeds, Vision Seeds, SeCan and Performance Seed.
- In-kind support for this project was provided by AAFC Melfort, University of Saskatchewan and the Saskatchewan Alfalfa Seed Producers Association.

## 2. Project Objectives

- This project was intended to demonstrate and compare new varieties of economically important grass and legume species used in Saskatchewan and to provide reliable and independent performance information for Saskatchewan producers, seed companies and plant breeders.

## 3. Project Rationale

- The Western Forage Testing System (WFTest) was developed in 1994 to coordinate the testing for registrations and performance of forage cultivars across Alberta, Saskatchewan, and Manitoba. Due to new CFIA amendments to Seed Regulations that eliminated the requirement for pre-registration testing and merit assessment for new forage varieties, the WFTEST was terminated in 2014. Later that year the Saskatchewan Advisory Council on Forage Crops recorded an action item to explore a scaled down testing system to serve the ongoing needs of the sector. In September of 2015, the Saskatchewan Forage Council held a consultation session with seed industry, researchers, government, and producer representatives. At that meeting, there was general consensus to move forward with a revised Forage Testing System for Saskatchewan - **SFTest**. The revised system would provide post registration varietal comparison between key economic species within the various climatic regions of the province. The system would also provide an opportunity for publicly funded breeders to compare new lines against current commercial varieties.

## 4. Project contacts:

**Shannon McArton**, Executive Director  
Saskatchewan Forage Council  
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Phone: 306-731-7610

**Terry Kowalchuk**, Provincial Specialist  
Saskatchewan Ministry of Agriculture  
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## 5. SFTest Committee (2017)

A SFTest Committee made up of industry and government representative was established to help prioritize submissions and select appropriate control species. Funding limitations prevented a comprehensive selection of species and varieties, as such, the SFTest represents a small cross section of species that are currently commercially available. The committee included:

- Nathan Siklenka – Saskatchewan Forage Council
- Clayton Myhre – forage seed company representative
- Dave Maxwell – industry representative designated through SK Forage Network
- Andrew Lindsay-Hawkins – industry representative designated through SK Forage Network
- Bill Houston – Agriculture and Agri-Food Canada
- Terry Kowalchuk – SK Ministry of Agriculture
- Sarah Sommerfeld – SK Ministry of Agriculture
- Bill Biligetu – Crop Development Center, University of Saskatchewan

## 6. SFTest Site Coordinators

In addition to the SFTest committee each of the sites was supported by coordinators who implemented the protocols set out by the committee, these included:

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<b>Jessica Weber</b> Western Applied Research Corporation Scott, Saskatchewan	<b>Brianne McInnes</b> Northeast Agriculture Research Foundation Melfort, SK
<b>Bryan Nybo</b> Wheatland Conservation Area Inc. Swift Curren,SK	<b>Brett Mollison</b> Agriculture and Agri-food Canada Melfort, Saskatchewan
<b>Byamba Dashnyam/Bill Biligetu</b> Crop Development Center, UofS	<b>Jessica Pratchler</b> Northeast Agriculture Research Foundation Melfort, SK

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## 7. Check Varieties

The following list of check varieties was approved by the SFTest committee:

- Alfalfa: Beaver, Rangelander, AC Grazeland
- Cicer milkvetch: Oxley II
- Sainfoin: Nova
- Smooth brome grass: Carlton
- Meadow brome grass: Fleet, AC Armada
- Hybrid brome grass: AC Knowles, AC Success
- Tall fescue: Courtenay
- Orchard grass: Kay
- Crested wheatgrass: Kirk, AC Goliath
- Intermediate/Pubescent wheatgrass: Chi

## 8. Species and Origin of Entries in 2017-2020 SFTest

### 8.1 Legumes

Entry	Species	Name of Variety	Source
1	<b>Alfalfa</b>	Beaver (check)	AAFC Saskatoon
2		Rangelander (Check)	AAFC Swift Current
3		AC Grazeland (Check)	AAFC Saskatoon
4		Unicorn	Brett-Young
5		Octane	Brett-Young
6		Foothold	Brett-Young
7		Phabulous	Ag Vision Seeds
8		Tango	Ag Vision Seeds
9		AC Totem	AAFC
10		Equinox	CPS
11		Runner	North Star
12		AC Yellowhead	AAFC
13	<b>Cicer milkvetch</b>	Oxley II (check)	AAFC
14		AC Veldt	AAFC
15	<b>Sainfoin</b>	Nova (check)	Public
16		AC Mountainview	AAFC

## 8.2 Grasses

Entry	Species	Name of Variety	Source
1	Meadow Bromegrass	Fleet (check)	
2		AC Armada (Check)	
3		AC Admiral	SeCan
4		S9549	UofS
5	Hybrid Bromegrass	AC Knowles (check)	AAFC
6		AC Success	AAFC
7		S9547	UofS
8		S9570	UofS
9		S9576	UofS
10	Smooth Bromegrass	Carleton (check)	
11	Intermediate wheatgrass	Chief (check)	
12	Pubescent wheatgrass	Greenleaf	North Star sds
13	Crested wheatgrass	Kirk (check)	
14		AC Goliath (Check)	
15		AC Newkirk	Secan
16		S9580	UofS
17	Festulolium	Fojtan	Pickseeds
18		Spring Green	Performance Seeds
19	Orchardgrass	Kay (check)	
20		Killarney	Brett-Young
21		Arctic	Northstar Seeds
22	Tall Fescue	Courtenay (check)	
23		Payload	Brett -Young
24		Cow Girl	Performance Seeds

## **9. Experimental Design & Plot Management**

Plots were seeded in a randomized complete block design with three replicates at each site. Sites were managed according to the recommended practices for forage management in the region.

### **9.1 Swift Current**

The plots were direct seeded into cereal stubble on June 6 2017 using a 4-row disc type drill on 10-inch row spacing. Plot size was 1.2 x 3.6m. Based on pre-seeding soil test, the soil contains N 28 lb/ac, P 3ppm, S 44lb/ac, and K 282ppm. Organic matter 2.3%. The soil pH is 8.0, and Electrical conductivity is 0.33 dS/m (non-saline soil). Soil texture was a coarse Loam. 75 lb/ac of P<sub>2</sub>O<sub>5</sub> and 20 lbs/ac of S were pre-banded before seeding. A pre-seed burnoff with RT 540 @ 1 L/ac was done before seeding. Weeds not controlled by herbicide were mowed before plant development or kept clean by hand picking. Site was very dry and it received irrigation of 1/2" for 4 times.

### **9.2 Saskatoon**

The plots were direct seeded into wheat stubble on May 16 2017. Plot size was 1.2 x 6 m. Sites received a pre-seed burn-off of R/T540 (a.i Potassium salt of N-(phosphonomethyl) glycine) at a rate of 1.3 L/acre. Based on pre-seeding soil test, the soil contains N 34lb/ac, P 28 lb/ac, S 23lb/ac, and K > 1080 lb/ac. The soil pH is 7.8, and Electrical conductivity is 0.20 dS/m (non-saline soil). Soil texture was a Clay Loam. At the time of seeding, no fertilizer was applied. In grass plots, 44.5lb/ac of N fertilizer (34-0-0) was applied on fall 2017. The legume plots received 17.8 lb/ac of 11-52-0 to meet the recommended phosphorus level. Plots were hand weeded using wheel hoe, and also were mowed to control weeds in 2017. Site was very dry, but did not receive any irrigation.

### **9.3 Scott**

The plots were direct seeded into wheat stubble on May 23 2017. However, due to poor seedling emergence and high weed pressure, grass plots were re-seeded on June 26 2017. The soil (0-24 inch) contains N 9ppm, P 29 ppm, S 14ppm, and K 254ppm. The soil pH is 6.2, and Electrical conductivity is 0.21 dS/m (non-saline soil). Phosphorus was applied as 11-52-0 at 20 lb/ac for legumes, and 30lb/ac for grasses. Plot size is 1.5 x 6 m. Plots were seeded with R-Tech plot drill on 10-inch row spacing. Plots were not irrigated in 2017. Prior to seeding, site was vertical tilled, followed by glyphosate @2L/ac, and followed by second vertical tillage. Weeds were maintained by mowing the weeds above the crop canopy. Re-seeded grass plots were lightly irrigated in July with a fire truck hose.

## 9.4 Melfort

The plots were direct seeded into cereal stubble on June 9 2017 (grass), and June 12 2017 (legume). The soil (0-12 inch) contains N 16 lb/ac, P 4 lb/ac, S 24lb/ac, and K 381 lb/ac. The soil pH is 6.2, and Electrical conductivity (EC) is 0.22 dS/m (non-saline soil). At seeding, phosphorus was applied as 11-52-0 at 80 kg/ha. Plot size is 2 x 7 m. Plots were seeded with a Fabro plot drill on 12-inch row spacing. Plots were not irrigated in 2017. Weeds were maintained by mowing the weeds above the crop canopy, and no herbicide was applied.

## 10. Seeding Rates

The seeding rates were based on provincial recommendations. Germination test was conducted prior to the seeding for all species, which was used to calculate Pure Live Seed (PLS). For grasses, seeding rate was 300 PLS m<sup>-2</sup> with an exception of orchardgrass (600 PLS m<sup>-2</sup>). All grasses and legumes were seeded at 1.5 cm depth. The seeding rate for alfalfa and cicer milkvetch was 400PLS m<sup>-2</sup>. The seeding rate for sainfoin was 200PLS m<sup>-2</sup>.

## 11. Data Collection

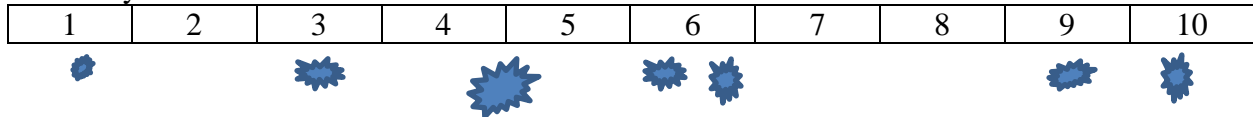
### Forage stand establishment: (See Tables for % of establishment)

- The measurement was taken from May 20 to May 30 2018.

The following protocol is based on line transect method of estimating percent cover.

- Use a 1m long rope, or rod or white tape.
- Using a permanent marker, mark every 10 cm over a 1-meter length. Then, lay the rope (rod) alongside one random row in the plot and count the number of 10 cm sections that have at least 1 plant or portion of a plant located between each 10 cm segment.

In the example below, there are plants in segments 1, 3, 4, 5, 6, 9 and 10. Note that there is one plant that spans segments 4 and 5 so it gets counted twice. Also in segment 6 there are 2 plants, but it only counts as one. Final score =7 or 70% cover.



### Forage Dry Matter Yield and Canopy Height

- Plots were harvested by species when the majority of plots are at 80% to 100% flowering, and again during regrowth.
- Canopy height was recorded by taking the average of the canopy height from 2 edge locations and 1 centre location.



## 12. Forage Nutritive Value

- Acid detergent fiber (ADF) and neutral detergent fiber (NDF), and crude protein were determined for samples from Swift Current and Saskatoon at the forage breeding lab at the Crop Development Centre of the U of S.

## 13. Limitations

- There was a relatively high degree of variability in the data between sites and between cultivars at the same location. Dry spring of 2017 conditions reduced germination and establishment especially at Scott and Swift Current. Some species were more affected than others. In addition, grasshoppers and deer predation may have impacted yield for specific species in some locations.
- There was a problem with wild oats at the Scott site despite a concerted effort to hand rogue the plots.
- Coefficient of variation (C.V.) which measures the deviation from the average yield between plots for a given species and cultivar was higher than 20% in some cases, this can be attributed to variation in stand establishment because of above-mentioned factors, and possible variability in seeding and harvesting.
- With only four sites in the SFTest compared to more than a dozen in the former Western Forage Test, there were fewer site years of data to average out variability between sites.
- The evaluation only tested monocultures and does not give an indication of performance in mixtures with other species.
- The study does not provide a good indication of longevity of the various species.

## 14. General Conclusions and Observations

- In many cases the old check cultivars performed as well or better than other cultivars.
- Some of the new cultivars performed well at some sites but were not consistent over the four-year period.
- There were no clear winners for alfalfa variety performance, different varieties performed differently at each site.
- Despite some fairly severe winter conditions most of the alfalfa varieties survived.
- Regrowth on some of the alfalfa looked very promising for the first year or two but did not persist beyond that point.
- AC Yellowhead, the only yellow flowering alfalfa, generally had low yield at most sites.
- Cicer and Sainfoin had good establishment in most locations but were highly variable. High coefficients of variation may be statistical which is not uncommon with few treatments because there are lower degrees of freedom.
- Festulolium, a combination of perennial rye grass and meadow fescue, had low survival at Scott and Saskatoon. At Melfort and Swift Current it survived but yields were low.

- Crested Wheatgrass establishment was poor at Melfort and Scott despite good establishment for other species.
- Tall fescue establishment was generally poor at most sites.
- The CVs for orchard grass and tall fescue were generally high possibly due to establishment issues.
- Some of new meadow brome lines show promise but data was inconsistent between sites.
- A couple of the hybrid bromegrass lines seemed to perform well at drier sites.

### 15. Abbreviation for Tables

- **Forage Est (%)**: Forage stand establishment percent
- **CP**: Crude protein concentration (% of dry matter)
- **ADF**: Acid detergent fiber concentration (% of dry matter)
- **NDF**: Neutral detergent fiber concentration (% of dry matter)
- **HGT**: Canopy Height (cm)
- **DMY** : Dry matter yield (kg/ha)

## Summary Tables: Legumes

### Alfalfa

### Swift Current

Cultivar	2018 Cut: June 21 / July 27					2019 Cut: July 12				2020 Cut: July 7 / Aug 6				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Beaver</b>	<b>2670</b>	<b>2019</b>	<b>4689</b>	<b>100</b>	<b>78</b>	<b>6458</b>	<b>-</b>	<b>6458</b>	<b>100</b>	<b>3739</b>	<b>2114</b>	<b>5853</b>	<b>100</b>	<b>4289</b>	<b>2066</b>	<b>6355</b>	<b>100</b>	<b>47</b>	<b>19.8</b>	<b>31.7</b>	<b>38.6</b>
Rangelander	2631	1690	4321	92	73	8624	-	8624	134	3273	1642	4915	84	4842	1666	6508	102	47	18.7	31.8	38.6
AC Grazeland	2435	1838	4273	91	80	7005	-	7005	108	2960	2335	5295	90	4133	2087	6220	98	46	18.8	30.1	37.1
Unicorn	3022	1760	4783	102	87	6055	-	6055	94	3009	1334	4343	74	4029	1547	5576	88	48	17.9	32.7	40.4
Phabulous	1943	1621	3564	76	77	6747	-	6747	104	2214	2170	4385	75	3635	1896	5530	87	42	18.8	30.0	34.7
Tango	2441	1833	4274	91	79	5819	-	5819	90	3104	2041	5145	88	3788	1937	5725	90	46	19.2	30.1	36.5
Octane	2440	1904	4344	93	75	7896	-	7896	122	3022	2450	5471	93	4453	2177	6629	104	46	19.1	29.6	36.6
Foothold	1876	1215	3091	66	88	5537	-	5537	86	2148	1653	3801	65	3620	2095	5715	90	38	19.3	30.2	37.8
AC Totem	2392	1849	4241	90	89	6583	-	6583	102	2799	2107	4906	84	3924	1978	5903	93	43	18.9	29.5	36.2
Equinox	2342	1633	3975	85	78	4665	-	4665	72	2777	2196	4973	85	3261	1914	5176	81	45	19.2	30.9	38.8
Runner	2323	1660	3983	85	79	6101	-	6101	94	3030	1962	4992	85	3818	1811	5629	89	48	19.5	30.0	35.7
AC Yellowhead	2558	1430	3988	85	84	7702	-	7702	119	2977	952	3929	67	4412	1191	5603	88	44	19.4	31.6	38.1
Statistically significant (P=0.05)	yes	no	yes			no		no		yes	yes	yes		no	no			yes	no	no	no
Coefficient of variation (%)	12.6	12.8	11.2			16.6		16.6		14.6	22.9	12.7		10.9	15.0			6.3	2.5	3.3	4.2

### Alfalfa

### Saskatoon

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: July 8 / Aug 21				2020 Cut: July 10 / Aug 13				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Beaver</b>	<b>4496</b>	<b>2046</b>	<b>6542</b>	<b>100</b>	<b>94</b>	<b>6369</b>	<b>3929</b>	<b>10298</b>	<b>100</b>	<b>6767</b>	<b>2636</b>	<b>9403</b>	<b>100</b>	<b>5877</b>	<b>2870</b>	<b>8748</b>	<b>100</b>	<b>-</b>	<b>17.5</b>	<b>32.3</b>	<b>41.2</b>
Rangelander	3852	2801	6653	102	85	5790	3356	9146	89	5399	1991	7390	79	5014	2716	7730	88	-	17.9	32.6	39.9
AC Grazeland	4132	2121	6253	96	89	6753	4029	10782	105	6588	3454	10041	107	5824	3201	9025	103	-	17.3	33.5	43.1
Unicorn	4720	2449	7169	110	91	6068	3586	9653	94	6099	2966	9065	96	5305	3000	8306	95	-	16.6	34.9	44.1
Phabulous	3944	2941	6885	105	88	5731	4146	9876	96	4653	3703	8356	89	4776	3597	8373	96	-	16.4	32.1	41.1
Tango	4328	2730	7058	108	91	6194	4624	10818	105	5252	3373	8487	90	5464	3576	9039	103	-	16.9	33.9	43.8
Octane	4052	2205	6256	96	90	6368	4038	10406	101	5758	3264	9022	96	5392	3169	8561	98	-	17.8	32.4	40.0
Foothold	3381	2138	5518	84	83	3918	3841	7759	75	4585	3224	7809	83	4282	3068	7350	84	-	19.3	29.5	37.7
AC Totem	3958	3462	7420	113	83	6755	4665	11419	111	5602	3707	9309	99	5438	3944	9383	107	-	15.5	36.3	47.2
Equinox	3978	2684	6662	102	92	6505	3687	10192	99	6489	3815	10304	110	5245	3395	8640	99	-	16.7	33.6	43.7
Runner	4237	2107	6344	97	89	6526	4052	10578	103	5946	2747	8693	92	5570	2968	8538	98	-	19.0	29.8	38.3
AC Yellowhead	3988	2274	6262	96	84	6125	2535	8661	84	6211	1973	8184	87	5441	2261	7702	88	-	18.4	32.8	41.0
Statistically significant (P=0.05)	yes	no	no			no	yes	yes		yes	yes	yes		yes	yes	yes			yes	no	yes
Coefficient of variation (%)	8.3	17.4	7.8			12.5	14.6	10.3		12.3	20.4	9.8		8.3	14.2	7.1			6.4	5.8	6.5

**Alfalfa**

**Scott**

Cultivar	2018 Cut: July 9 / Aug 20					2019 Cut: July 12 / Sep 4				2020 Cut: July 15 / Aug 26				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	HGT (cm)
<b>Beaver</b>	<b>2911</b>	<b>3412</b>	<b>6323</b>	<b>100</b>	<b>44</b>	<b>3408</b>	<b>2215</b>	<b>5623</b>	<b>100</b>	<b>2444</b>	<b>1939</b>	<b>4383</b>	<b>100</b>	<b>2663</b>	<b>2331</b>	<b>4994</b>	<b>100</b>	<b>76</b>
Rangelander	2691	2960	5651	89	44	3285	2286	5571	99	2171	1841	4012	92	2846	2340	5186	104	73
AC Grazeland	2630	2942	5573	88	53	2747	2556	5302	94	1692	1395	3087	70	1977	1917	3894	78	81
Unicorn	3088	3592	6681	106	54	3196	2230	5426	96	1715	1546	3261	74	2507	2254	4761	95	81
Phabulous	1222	2054	3276	52	35	2216	2441	4657	83	1087	1345	2432	55	1376	1758	3134	63	75
Tango	868	1814	2683	42	27	1313	1472	2785	50	643	808	1452	33	856	1212	2068	41	72
Octane	1378	2541	3919	62	38	2313	2254	4567	81	1409	1508	2918	67	1576	1833	3409	68	77
Foothold	2181	1997	4179	66	33	1832	1727	3559	63	1163	1616	2779	63	1400	1750	3150	63	70
AC Totem	2025	2789	4814	76	59	3097	2551	5648	100	2522	1995	4518	103	2280	2120	4399	88	78
Equinox	1998	3022	5020	79	66	2421	2453	4874	87	1853	1978	3831	87	1879	2173	4052	81	76
Runner	2823	3295	6119	97	50	2867	2448	5315	95	2376	2193	4568	104	2560	2481	5042	101	79
AC Yellowhead	4823	2586	7409	117	76	4519	2233	6752	120	3317	2193	5510	126	3520	2094	5614	112	74
Statistically significant (P=0.05)	no	no	no			yes	no	yes		yes	yes	yes		yes	no	yes		yes
Coefficient of variation (%)	43.8	20.8	35.1			30.2	14.6	20.8		39.8	23.9	31.4		35.4	17.3	25.4		4.6

**Alfalfa**

**Melfort**

Cultivar	2018 Cut: June 28 / Aug 15					2019 Cut: July 29 / Sep 18				2020 Cut: July 10 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Beaver	HGT (cm)
<b>Beaver</b>	<b>3815</b>	<b>4222</b>	<b>8037</b>	<b>100</b>	<b>100</b>	<b>12721</b>	<b>4499</b>	<b>17220</b>	<b>100</b>	<b>5410</b>	<b>4373</b>	<b>9784</b>	<b>100</b>	<b>7315</b>	<b>4365</b>	<b>11680</b>	<b>100</b>	<b>64</b>
Rangelander	3576	3521	7096	88	85	13012	3419	16430	95	5070	3161	8231	84	7219	3367	10586	91	61
AC Grazeland	3928	4665	8593	107	90	10101	4963	15063	87	6172	4271	10443	107	6733	4633	11367	97	69
Unicorn	3912	4446	8357	104	98	14969	2830	17800	103	5831	3830	9661	99	8237	3702	11939	102	66
Phabulous	3637	4385	8021	100	98	9064	3543	12607	73	5389	4024	9413	96	6030	3984	10014	86	63
Tango	3523	4037	7560	94	95	11214	5601	16815	98	5106	4212	9318	95	6614	4617	11231	96	64
Octane	3787	3942	7729	96	90	11719	4611	16330	95	5242	4455	9697	99	7110	4336	11252	96	64
Foothold	3440	3947	7387	92	93	10405	3904	14309	83	5205	3950	9155	94	6350	3934	10283	88	57
AC Totem	3842	3890	7733	96	93	10667	4479	15147	88	5358	4097	9455	97	6623	4156	10778	92	64
Equinox	3931	3441	7372	92	98	15521	4897	20418	119	6197	4477	10674	109	8550	4271	12821	110	66
Runner	4529	4055	8584	107	88	11531	4624	16155	94	6299	4910	11208	115	7686	4530	11982	103	68
AC Yellowhead	3504	3934	7438	93	95	11112	3880	14992	87	4682	2250	6931	71	6433	3355	9787	84	57
Statistically significant (P=0.05)	no	no	no			no	no	no		no	yes	yes		no	yes	no		yes
Coefficient of variation (%)	12.9	17.8	12.7			16.2	18.1	12.1		9.3	17.4	11.8		10.9	10.9	8.0		5.9

**Cicer milkvetch****Swift Current**

Cultivar	2018 Cut: June 21 / July 27					2019 Cut: July 12				2020 Cut: July 7 / Aug 6				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Oxley II</b>	<b>1114</b>	<b>392</b>	<b>1505</b>	<b>100</b>	<b>77</b>	<b>6585</b>	<b>-</b>	<b>6585</b>	<b>100</b>	<b>2905</b>	<b>430</b>	<b>3335</b>	<b>100</b>	<b>3534</b>	<b>411</b>	<b>3945</b>	<b>100</b>	<b>32.5</b>	<b>19.3</b>	<b>31.8</b>	<b>37.3</b>
AC Veldt	1270	532	1802	120	75	6937	-	6937	105	3589	512	4100	123	3932	522	4454	113	34.5	17.6	32.3	37.6
Statistically significant (P=0.05)	no	no	no			no		no		no	no	no		no	no			no	no	no	no
Coefficient of variation (%)	41.0	39.0	30.9			48.0		48.0		14.2	27.6	17.2		77.5	33.7			29.6	12.4	29.5	22.4

**Cicer milkvetch****Saskatoon**

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: July 8 / Aug 21				2020 Cut: July 10 / Aug 13				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Oxley II</b>	<b>2237</b>	<b>823</b>	<b>3060</b>	<b>100</b>	<b>87</b>	<b>4918</b>	<b>2006</b>	<b>6924</b>	<b>100</b>	<b>4903</b>	<b>1525</b>	<b>6427</b>	<b>100</b>	<b>4019</b>	<b>1591</b>	<b>5610</b>	<b>100</b>	<b>-</b>	<b>17.2</b>	<b>30.5</b>	<b>36.9</b>
AC Veldt	2296	816	3113	102	90	5248	2307	7554	109	3401	209	3602	56	3669	1247	4916	88	-	16.9	31.4	37.8
Statistically significant (P=0.05)	no	no	no			no	no	no		no	yes	no		no	no	no			no	no	no
Coefficient of variation (%)	12.7	41.1	20.6			25.0	17.2	15.4		23.9	59.9	31.4		38.9	54.4	39.9			14.8	21.1	16.4

**Cicer milkvetch****Scott**

Cultivar	2018 Cut: July 18 / Aug 20					2019 Cut: July 12 / Sep 4				2020 Cut: July 27				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II /1st cut/	HGT (cm)
<b>Oxley II</b>	<b>4714</b>	<b>1993</b>	<b>6707</b>	<b>100</b>	<b>85</b>	<b>4907</b>	<b>2529</b>	<b>7436</b>	<b>100</b>	<b>2920</b>	<b>-</b>	<b>2920</b>	<b>100</b>	<b>3987</b>	<b>2224</b>	<b>6211</b>	<b>100</b>	<b>49.0</b>
AC Veldt	6180	2143	8323	124	77	4478	3077	7556	102	3173	-	3173	109	4888	2559	7447	120	57.3
Statistically significant (P=0.05)	no	no	no			no	no	no		no		no		no	no			yes
Coefficient of variation (%)	31.1	32.4	29.3			17.5	28.8	14.6		14.4		14.4		41.8	36.0			33.8

**Cicer milkvetch****Melfort**

Cultivar	2018 Cut: June 28 / Aug 15					2019 Cut: July 29 / Sep 18				2020 Cut: July 10 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Oxley II	HGT (cm)
<b>Oxley II</b>	<b>2197</b>	<b>3197</b>	<b>5393</b>	<b>100</b>	<b>93</b>	<b>12966</b>	<b>3091</b>	<b>16056</b>	<b>100</b>	<b>3627</b>	<b>2559</b>	<b>6186</b>	<b>100</b>	<b>6263</b>	<b>2949</b>	<b>9212</b>	<b>100</b>	<b>44.2</b>
AC Veldt	2459	2587	5047	94	92	8456	3121	11577	72	3815	2884	6699	108	4910	2864	7774	84	44.7
Statistically significant (P=0.05)	no	yes	no			no	no	no		no	no	no		no	no	no		no
Coefficient of variation (%)	34.0	13.7	15.9			49.0	22.9	40.2		7.4	25.5	12.1		82.6	20.9	56.9		19.5

**Sainfoin** **Swift Current**

Cultivar	2018 Cut: June 21 / July 27					2019 Cut: July 12				2020 Cut: July 7 / Aug 6				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Nova</b>	<b>657</b>	<b>489</b>	<b>1147</b>	<b>100</b>	<b>68</b>	<b>4866</b>	<b>6549</b>	<b>11415</b>	<b>100</b>	<b>6329</b>	<b>1719</b>	<b>8048</b>	<b>100</b>	<b>3643</b>	<b>2919</b>	<b>6563</b>	<b>100</b>	<b>50</b>	<b>14.4</b>	<b>32.7</b>	<b>39.6</b>
AC Mountainview	438	345	783	68	87	4242	7053	11295	99	4270	1874	6144	76	2983	3091	6074	93	43	13.3	32.4	39.8
Statistically significant (P=0.05)	yes	no	no			no	no	no		no	no	no		no	no			no	no	no	no
Coefficient of variation (%)	25.3	51.1	31.3			17.9	13.9	13.0		21.1	21.6	19.3		63.1	93.2			45.5	26.2	24.6	17.2

**Sainfoin** **Saskatoon**

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: July 8 / Aug 21				2020 Cut: July 10 / Aug 13				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Nova</b>	<b>3650</b>	<b>3167</b>	<b>6817</b>	<b>100</b>	<b>70</b>	<b>5915</b>	<b>5664</b>	<b>11578</b>	<b>100</b>	<b>6722</b>	<b>2511</b>	<b>9234</b>	<b>100</b>	<b>5429</b>	<b>3781</b>	<b>9210</b>	<b>100</b>	<b>-</b>	<b>17.1</b>	<b>31.9</b>	<b>39.0</b>
AC Mountainview	3079	2083	5162	88	63	5474	5229	10703	92	6449	1935	8383	91	5001	3083	8083	88	-	14.7	30.5	37.1
Statistically significant (P=0.05)	yes	no	no			no	yes	no		no	no	no		no	yes	yes			yes	no	no
Coefficient of variation (%)	21.5	35.9	14.1			18.5	7.3	10.2		7.0	20.9	6.1		29.5	45.3	27.2			15.7	9.6	7.5

**Sainfoin** **Scott**

Cultivar	2018 Cut: July 5 / Aug 20					2019 Cut: July 12 / Sep 4				2020				2 years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	HGT (cm)
<b>Nova</b>	<b>3099</b>	<b>1062</b>	<b>4161</b>	<b>100</b>	<b>54</b>	<b>2080</b>	<b>1487</b>	<b>3566</b>	<b>100</b>	-	-			<b>2157</b>	<b>1217</b>	<b>3374</b>	<b>100</b>	<b>72</b>
AC Mountainview	867	532	1399	34	52	837	807	1643	46	-	-			716	642	1358	40	69
Statistically significant (P=0.05)	no	yes	yes			no	yes	no						yes	no	yes		no
Coefficient of variation (%)	81.1	42.3	68.8			78.9	83.2	50.6						104.6	98.8	98.8		16.2

**Sainfoin** **Melfort**

Cultivar	2018 / June 28 / Aug 15/					2019 / July 29 / Sep 18/				2020 / July 10 / Sep 8/				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Nova	HGT (cm)
<b>Nova</b>	<b>3387</b>	<b>3429</b>	<b>6816</b>	<b>100</b>	<b>93</b>	<b>10335</b>	<b>1774</b>	<b>12109</b>	<b>100</b>	<b>3032</b>	<b>729</b>	<b>3761</b>	<b>100</b>	<b>5585</b>	<b>1977</b>	<b>7562</b>	<b>100</b>	<b>65</b>
AC Mountainview	2342	2631	4973	73	95	8314	2172	10486	87	2202	510	2712	72	4286	1771	6057	80	66
Statistically significant (P=0.05)	yes	yes	yes			no	no	no		no	no	no		yes	no	yes		no
Coefficient of variation (%)	26.3	16.6	20.1			20.3	21.4	18.3		23.4	38.8	24.8		67.0	56.3	53.0		11.9

## Summary Tables: Grasses

### Bromegrass

### Swift Current

Species	Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success (1st cut)	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Hybrid</b>	<b>AC Success</b>	<b>1201</b>	<b>591</b>	<b>1792</b>	<b>100</b>	<b>80</b>	<b>2327</b>	<b>-</b>	<b>2327</b>	<b>100</b>	<b>4369</b>	<b>-</b>	<b>4369</b>	<b>100</b>	<b>2632</b>	<b>591</b>	<b>-</b>	<b>100</b>	<b>77</b>	<b>9.9</b>	<b>34.6</b>	<b>60.6</b>
Meadow	Fleet	1270	517	1787	100	79	2246	-	2246	97	4265	-	4265	98	2594	517	-	99	73	10.3	35.2	61.1
Meadow	AC Armada	1141	615	1756	98	82	2137	-	2137	92	4429	-	4429	101	2569	615	-	98	71	9.4	35.2	60.6
Meadow	AC Admiral	1341	460	1801	101	76	2067	-	2067	89	4137	-	4137	95	2515	460	-	96	75	9.9	34.4	60.1
Meadow	S9549	1323	642	1965	110	83	2228	-	2228	96	4406	-	4406	101	2652	642	-	101	76	8.7	35.8	61.0
Hybrid	AC Knowles	1304	780	2085	116	88	2201	-	2201	95	4667	-	4667	107	2724	780	-	103	77	9.1	36.4	61.8
Hybrid	S9547	1433	603	2037	114	88	2346	-	2346	101	4345	-	4345	99	2708	603	-	103	75	10.2	34.6	60.7
Hybrid	S9570	1458	653	2111	118	80	2464	-	2464	106	4816	-	4816	110	2912	653	-	111	76	9.8	34.6	60.2
Hybrid	S9576	1119	778	1897	106	70	1754	-	1754	75	4187	-	4187	96	2353	778	-	89	73	9.6	36.1	61.6
Smooth	Carleton	2194	753	2947	164	70	1914	-	1914	82	4007	-	4007	92	2705	753	-	103	68	11.1	34.3	59.7
Statically significant (P=0.05)		yes	no	no			no		no		no		no		yes	no			yes	yes	no	no
Coefficient of Variation (%)		25.4	33.5	23.5			9.8		9.8		5.5		5.5		5.6	33.5			4.0	6.7	2.1	1.1

### Bromegrass

### Saskatoon

Species	Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: June 24 / Aug 21				2020 Cut: July 6 / Sep 10				3years combined							
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Hybrid</b>	<b>AC Success</b>	<b>3036</b>	<b>1660</b>	<b>4696</b>	<b>100</b>	<b>47</b>	<b>4877</b>	<b>2490</b>	<b>7367</b>	<b>100</b>	<b>3482</b>	<b>920</b>	<b>4402</b>	<b>100</b>	<b>3798</b>	<b>1690</b>	<b>5488</b>	<b>100</b>	<b>-</b>	<b>13.2</b>	<b>34.0</b>	<b>61.7</b>
Meadow	Fleet	4366	859	5225	111	80	4561	2809	7370	100	2996	909	3905	89	3974	1526	5500	100	-	11.6	33.7	60.9
Meadow	AC Armada	4683	670	5353	114	70	5244	2334	7578	103	2783	1230	4013	91	4237	1411	5648	103	-	11.8	33.7	61.2
Meadow	AC Admiral	4059	1105	5164	110	77	4717	2992	7709	105	3035	1185	4220	96	3937	1761	5698	104	-	13.4	34.1	61.1
Meadow	S9549	4101	1053	5153	110	74	4932	2939	7871	107	2867	1678	4545	103	3966	1890	5856	107	-	11.8	33.5	61.5
Hybrid	AC Knowles	4015	1215	5229	111	65	5188	1881	7069	96	3310	315	3624	82	4171	1137	5308	97	-	12.7	33.0	61.0
Hybrid	S9547	3171	1361	4532	97	52	3958	2058	6016	82	3959	377	4336	99	3696	1265	4961	90	-	14.1	33.5	61.4
Hybrid	S9570	3249	1231	4480	95	60	3718	2387	6105	83	3144	511	3655	83	3370	1376	4747	86	-	13.5	33.5	61.8
Hybrid	S9576	3634	993	4626	99	57	4857	2110	6967	95	4325	509	4834	110	4272	1204	5476	100	-	13.5	33.6	61.8
Smooth	Carleton	3990	770	4761	101	72	4517	2019	6536	89	4051	446	4496	102	4186	1078	5264	96	-	12.3	33.4	61.7
Statically significant (P=0.05)		yes	yes	no			no	no	no		ye	yes	no		no	yes	no			yes	no	no
Coefficient of Variation (%)		14.1	26.9	6.8			10.6	16.6	9.2		15.9	55.9	9.4		7.1	19.3	6.3			6.8	0.9	0.6

**Bromegrass**

**Scott**

Species	Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success /1st cut/	HGT (cm)
<b>Hybrid</b>	<b>AC Success</b>	<b>3025</b>	<b>998</b>	<b>4023</b>	<b>100</b>	<b>80</b>	<b>2823</b>	<b>-</b>	<b>2823</b>	<b>100</b>	<b>4285</b>	<b>-</b>	<b>4285</b>	<b>100</b>	<b>3378</b>	<b>998</b>	<b>-</b>	<b>100</b>	<b>117</b>
Meadow	Fleet	2255	1103	3358	83	76	2388	-	2388	85	3360	-	3360	78	2668	1103	-	79	109
Meadow	AC Armada	2290	1166	3455	86	82	2799	-	2799	99	3556	-	3556	83	2882	1166	-	85	112
Meadow	AC Admiral	1985	1241	3225	80	69	2399	-	2399	85	3150	-	3150	74	2511	1241	-	74	110
Meadow	S9549	1772	957	2729	68	73	2183	-	2183	77	3476	-	3476	81	2477	957	-	73	111
Hybrid	AC Knowles	2387	1043	3431	85	79	2735	-	2735	97	4481	-	4481	105	3201	1043	-	95	116
Hybrid	S9547	2694	993	3686	92	51	2491	-	2491	88	4033	-	4033	94	3073	993	-	91	114
Hybrid	S9570	2510	859	3370	84	88	2470	-	2470	87	4266	-	4266	100	3082	859	-	91	110
Hybrid	S9576	2594	921	3515	87	75	2609	-	2609	92	4439	-	4439	104	3214	921	-	95	112
Smooth	Carleton	3179	1149	4328	108	94	2429	-	2429	86	4094	-	4094	96	3234	1149	-	96	105
Statically significant (P=0.05)		yes	no	yes			no		no		yes		yes		yes	no			yes
Coefficient of Variation (%)		26.6	24.8	21.8			8.1		8.1		12.4		12.4		10.8	11.5			3.2

**Bromegrass**

**Melfort**

Species	Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of AC Success	HGT (cm)
<b>Hybrid</b>	<b>AC Success</b>	<b>2902</b>	<b>820</b>	<b>3723</b>	<b>100</b>	<b>93</b>	<b>3594</b>	<b>1017</b>	<b>4612</b>	<b>100</b>	<b>2935</b>	<b>880</b>	<b>3815</b>	<b>100</b>	<b>3144</b>	<b>906</b>	<b>4050</b>	<b>100</b>	<b>87</b>
Meadow	Fleet	3247	956	4203	113	90	3452	2592	6044	131	2848	1344	4191	110	3182	1630	4813	119	93
Meadow	AC Armada	2830	1134	3964	106	98	4039	2233	6273	136	2942	1465	4407	116	3270	1611	4881	121	93
Meadow	AC Admiral	3016	1204	4221	113	97	3686	2760	6447	140	3203	1697	4900	128	3302	1887	5189	128	91
Meadow	S9549	2765	1275	4039	109	87	4123	3042	7165	155	3266	1649	4915	129	3384	1989	5373	133	98
Hybrid	AC Knowles	3371	761	4132	111	100	3909	1161	5070	110	3245	930	4175	109	3508	951	4459	110	91
Hybrid	S9547	3347	746	4094	110	82	4440	1188	5628	122	3314	906	4220	111	3701	947	4647	115	95
Hybrid	S9570	3129	771	3900	105	88	3872	1247	5119	111	3420	865	4285	112	3474	961	4435	110	87
Hybrid	S9576	3040	706	3746	101	98	3990	1137	5128	111	3313	887	4200	110	3448	910	4358	108	88
Smooth	Carleton	3074	854	3928	105	90	4122	1146	5268	114	3097	1353	4450	117	3431	1118	4548	112	88
Statically significant (P=0.05)		no	yes	no			no	yes	yes		no	yes	no		no	yes	yes		yes
Coefficient of Variation (%)		19.5	30.8	12.3			7.7	45.9	13.9		6.1	28.3	7.7		4.9	33.9	8.5		4.0



**Intermediate & Pubescent wheatgrass Swift Current**

Species	Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief /1st cut/	HGT (cm)	CP (%)	ADF (%)	NDF (%)
Intermediate wheatgrass	Chief	1132	1095	2227	100	42	2337	-	2337	100	4290	-	4290	100	2586	1095	-	100	72	10.6	38.4	64.0
Pubescent wheatgrass	Greenleaf	1347	521	1868	84	84	2364	-	2364	101	4339	-	4339	101	2683	521	-	104	69	10.3	36.7	63.4
Statically significant (P=0.05)		yes	no	no			no		no		no		no		no	no			no	no	yes	no
Coefficient of Variation (%)		16.0	54.6	21.4			15.6		15.6		13.4		13.4		50.6	54.6			25.0	8.0	12.5	4.0

**Intermediate & Pubescent wheatgrass Saskatoon**

Species	Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: June 24 / Aug 21				2020 Cut: July 6 / Sep 10				3years combined							
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	HGT (cm)	CP (%)	ADF (%)	NDF (%)
Intermediate wheatgrass	Chief	5368	810	6178	100	57	1336	-	1336	100.0	5149	582	5731	100	3953	394	4346	100	-	11.3	34.2	63.4
Pubescent wheatgrass	Greenleaf	6146	1116	7263	118	86	1425	-	1425	106.7	4710	226	4936	86	4093	671	4468	103	-	11.5	33.7	62.5
Statically significant (P=0.05)		yes	no	no			no		no		no	no	no		no	no	no			no	no	no
Coefficient of Variation (%)		12.2	62.5	14.2			27.2		27.2		27.7	73.1	24.5		42.0	84.6	44.6			13.7	3.9	2.9

**Intermediate & Pubescent wheatgrass Scott**

Species	Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief /1st cut/	HGT (cm)
Intermediate wheatgrass	Chief	2331	656	2987	100	51	2821	-	2821	100	2788	-	2788	100	2647	656	-	100	122
Pubescent wheatgrass	Greenleaf	2361	691	3052	102	55	2829	-	2829	100	2703	-	2703	97	2722	691	-	103	117
Statically significant (P=0.05)		no	no	no			no		no		no		no		no	no			no
Coefficient of Variation (%)		18.6	28.6	19.3			12.6		12.6		11.6		11.6		15.1	28.6			7.0

**Intermediate & Pubescent wheatgrass Melfort**

Species	Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
		1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Chief	HGT (cm)
Intermediate wheatgrass	Chief	2201	680	2881	100	65	4261	711	4972	100	3482	1251	4733	100	3457	820	4277	100	71
Pubescent wheatgrass	Greenleaf	2825	669	3494	121	98	4035	1011	5046	101	2949	1248	4197	89	3270	976	4245	99	67
Statically significant (P=0.05)		yes	no	no			no	yes	no		no	no	no		no	no	no		no
Coefficient of Variation (%)		33.9	38.3	24.3			10.0	25.1	7.4		16.2	14.8	9.6		26.8	37.0	21.8		12.0

**Crested Wheatgrass Swift Current**

Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk /1st cut/	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Kirk</b>	<b>1401</b>	<b>977</b>	<b>2379</b>	<b>100</b>	<b>79</b>	<b>2685</b>	-	<b>2685</b>	<b>100</b>	<b>4037</b>	-	<b>4037</b>	<b>100</b>	<b>2708</b>	<b>977</b>	-	<b>100</b>	<b>64</b>	<b>10.0</b>	<b>35.1</b>	<b>61</b>
AC Goliath	1335	1399	2735	115	67	2363	-	2363	88	4108	-	4108	102	2602	1399	-	96	67	9.9	36.6	62
AC Newkirk	1618	1206	2823	119	70	2835	-	2835	106	4208	-	4208	104	2887	1206	-	107	68	9.8	34.6	60
S9580	1429	1143	2572	108	64	2906	-	2906	108	3896	-	3896	97	2744	1143	-	101	64	11.2	36.3	62
Statistically significant (P=0.05)	no	no	yes			no		no		no		no		no	no			yes	no	no	no
Coefficient of variation (%)	15.4	21.8	7.9			8.9		8.9		3.2		3.2		4.3	14.8			3.0	6.4	2.7	2.0

**Crested Wheatgrass Saskatoon**

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: June 24 / Aug 21				2020 Cut: July 6 / Sep 10				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Kirk</b>	<b>5604</b>	<b>866</b>	<b>6469</b>	<b>100</b>	<b>88</b>	<b>5546</b>	<b>2258</b>	<b>7804</b>	<b>100</b>	<b>4563</b>	<b>421</b>	<b>4984</b>	<b>100</b>	<b>5274</b>	<b>1503</b>	<b>6777</b>	<b>100</b>	-	<b>12.4</b>	<b>33.3</b>	<b>62</b>
AC Goliath	4936	663	5599	87	73	4598	1999	6597	85	3486	340	3826	77	4340	839	5179	76	-	11.9	33.1	61
AC Newkirk	5073	836	5908	91	86	5162	2029	7191	92	4610	228	4838	97	4956	1085	6041	89	-	11.9	33.0	62
S9580	5220	1014	6234	96	88	5259	1998	7257	93	4268	380	4648	93	4916	1014	5930	88	-	12.2	33.1	61
Statistically significant (P=0.05)	no	no	yes			no	no	no		no	no	no		no	yes	no			no	no	no
Coefficient of variation (%)	5.5	17.1	6.3			7.7	6.1	6.8		12.3	24.3	11.3		8.0	25.3	10.9			2.1	0.4	0.9

**Crested Wheatgrass Scott**

Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk /1st cut/	HGT (cm)
<b>Kirk</b>	<b>1313</b>	<b>764</b>	<b>2077</b>	<b>100</b>	<b>60</b>	<b>2894</b>	-	<b>2894</b>	<b>100</b>	<b>2521</b>	-	<b>2521</b>	<b>100</b>	<b>2243</b>	<b>764</b>	-	<b>100</b>	<b>90</b>
AC Goliath	1056	979	2035	98	46	2523	-	2523	87	1937	-	1937	77	1838	979	-	82	94
AC Newkirk	1244	913	2157	104	46	2665	-	2665	92	2327	-	2327	92	2079	913	-	93	91
S9580	1128	760	1888	91	55	2373	-	2373	82	2003	-	2003	79	1835	760	-	82	86
Statistically significant (P=0.05)	no	yes	no			no		no		no		no		yes	yes			yes
Coefficient of variation (%)	20.9	14.7	14.3			8.5		8.5		12.5		12.5		9.9	12.8			3.7

**Crested Wheatgrass Melfort**

Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kirk	HGT cm
<b>Kirk</b>	<b>2015</b>	<b>1052</b>	<b>3068</b>	<b>100</b>	<b>72</b>	<b>3116</b>	<b>698</b>	<b>3813</b>	<b>100</b>	<b>2746</b>	<b>1330</b>	<b>4076</b>	<b>100</b>	<b>2774</b>	<b>1027</b>	<b>3801</b>	<b>100</b>	<b>68</b>
AC Goliath	1414	976	2390	78	38	2547	1218	3765	99	2601	1049	3650	90	2338	1081	3419	90	69
AC Newkirk	1726	947	2673	87	63	2740	895	3635	95	2205	1120	3325	82	2340	987	3328	88	68
S9580	1332	1545	2877	94	63	2815	993	3808	100	2371	1019	3390	83	2275	1263	3539	93	67
Statistically significant (P=0.05)	yes	no	no			no	no	no		no	no	no		yes	no	no		no
Coefficient of variation (%)	46.3	30.2	24.3			8.4	22.7	2.2		9.7	12.4	9.4		9.5	11.2	5.8		1.5

**Festulolium****Swift Current**

Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtan /1st cut/	HGT (cm)	CP (%)	ADF (%)	NDF (%)
Fojtan	842	394	1236	100	79	615	-	615	100	2833	-	2833	100	1430	394	-	100	59	11.0	31.6	60.3
Spring Green	858	428	1286	104	85	1004	-	1004	118	3064	-	3064	108	1642	428	-	115	57	10.6	31.8	60.9
Statistically significant (P=0.05)	no	no	no			no		no		no		no		yes	no			no	no	no	no
Coefficient of variation (%)	11.3	40.1	19.3			42.3		42.3		5.6		5.6		68.3	40.1			19.7	15.4	6.5	4.8

**Festulolium****Saskatoon**

Cultivar	2018					2019				2020				3years combined						
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of check	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of check	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of check	HGT (cm)	CP (%)	ADF (%)
Fojtan	Extremely low survived plants					-				-				-						
Spring Green	Extremely low survived plants					-				-				-						

**Festulolium****Scott**

Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtan	HGT (cm)
Fojtan	236	329	565	100	60	888	-	-	100	1101	-	-	100	742	329	-	-	-
Spring Green	Extremely low survived plants																	
Statistically significant (P=0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coefficient of variation (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Festulolium****Melfort**

Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtah	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Fojtan	HGT (cm)
Fojtan	890	780	1670	100	67	2721	2172	4893	100	2082	1293	3375	100	1898	1415	3313	100	71
Spring Green	405	919	1324	79	42	1188	2999	4187	86	1005	890	1895	56	727	1575	2302	69	45
Statistically significant (P=0.05)	yes	no	no			yes	no	no		yes	yes	no		yes	no	yes		yes
Coefficient of variation (%)	66.8	25.4	23.9			43.1	28.7	15.8		41.7	19.1	31.9		62.1	57.3	49.2		24.5

**Orchardgrass** **Swift Current**

Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay /1st cut/	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Kay</b>	1159	1001	2160	100	71	1498	-	1498	100	3280	-	3280	100	1849	1001	-	100	60	11.4	29.4	53.0
<b>Killarney</b>	1069	703	1772	82	75	2134	-	2134	142	3212	-	3212	98	2138	703	-	116	61	11.6	29.2	52.5
<b>Arctic</b>	1277	769	2046	95	94	1683	-	1683	112	3571	-	3571	109	2177	769	-	118	58	10.6	28.1	51.0
Statistically significant (P=0.05)	no	yes	no			no		no		no		no		no	yes			no	no	no	no
Coefficient of variation (%)	47.0	22.6	32.6			43.7		43.7		5.7		5.7		8.7	22.6			1.9	5.1	2.3	2.0

**Orchardgrass** **Saskatoon**

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: June 24 / Aug 21				2020 Cut: July 6 / Sep 10				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Kay</b>	754	1049	1804	100	58	5128	2566	7695	100	3147	393	3540	100	3010	1336	4346	100	-	12.2	31.1	57.0
<b>Killarney</b>	1259	1094	2352	130	80	4494	2243	6738	88	3094	632	3725	105	2949	1323	4272	98	-	12.6	32.1	59.2
<b>Arctic</b>	1221	913	2134	118	80	3897	1664	5561	72	2742	408	3150	89	2620	995	3615	83	-	11.1	30.5	56.2
Statistically significant (P=0.05)	yes	no	no			no	no	no		no	no	no		no	no	no			no	no	no
Coefficient of variation (%)	26.1	9.3	13.2			24.7	24.4	22.0		7.3	27.9	8.5		7.3	15.9	9.9			6.5	2.6	2.7

**Orchardgrass** **Scott**

Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay /1st cut/	HGT (cm)
<b>Kay</b>	656	621	1277	100	76	1257	-	1257	100	1449	-	1449	100	1121	621	-	100	74
<b>Killarney</b>	1141	537	1679	131	92	1361	-	1361	108	1620	-	1620	112	1374	537	-	123	71
<b>Arctic</b>	1197	418	1615	126	92	1340	-	1340	107	1727	-	1727	119	1421	418	-	127	76
Statistically significant (P=0.05)	yes	no	no			no		no		no		no		yes	no			no
Coefficient of variation (%)	39.9	43.3	29.4			9.0		9.0		8.8		8.8		12.4	19.4			3.5

**Orchardgrass** **Melfort**

Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Kay	HGT (cm)
<b>Kay</b>	1649	955	2604	100	78	4428	1804	6232	100	2626	1718	4345	100	2901	1493	4394	100	88
<b>Killarney</b>	1703	690	2394	92	80	3982	1496	5478	88	2804	1422	4226	97	2830	1203	4033	92	89
<b>Arctic</b>	1779	826	2605	100	72	3372	1365	4736	76	2709	1370	4079	94	2620	1187	3807	87	90
Statistically significant (P=0.05)	no	no	yes			no	no	yes		no	yes	no		no	yes	yes		no
Coefficient of variation (%)	19.7	18.4	15.7			17.5	19.8	14.4		3.3	12.5	3.2		5.3	13.3	7.3		0.7

**Tall Fescue**

**Swift Current**

Cultivar	2018 Cut: June 21 / Sep 28					2019 Cut: June 26				2020 Cut: July 7				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Courtenay</b>	<b>1021</b>	<b>1222</b>	<b>2243</b>	<b>100</b>	<b>64</b>	<b>946</b>	-	<b>946</b>	<b>100</b>	<b>3804</b>	-	<b>3804</b>	<b>100</b>	<b>1924</b>	<b>1222</b>	-	<b>100</b>	<b>67</b>	<b>11.2</b>	<b>31.7</b>	<b>58.8</b>
Payload	813	816	1628	73	83	984	-	984	104	2977	-	2977	78	1591	816	-	83	66	10.0	30.6	57.7
Cow Girl	701	563	1264	56	71	-	-	-	-	-	-	-	-	701	563	-	36	-	-	-	-
Statistically significant (P=0.05)	no	yes	no			no		no		no		no		no	yes			yes	no	no	no
Coefficient of variation (%)	49.2	40.4	37.5			15.3		15.3		17.2		17.2		45.0	40.4			1.1	7.9	2.6	1.4

**Tall Fescue**

**Saskatoon**

Cultivar	2018 Cut: June 14 / Aug 15					2019 Cut: June 24 / Aug 21				2020 Cut: July 6 / Sep 10				3years combined							
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	HGT (cm)	CP (%)	ADF (%)	NDF (%)
<b>Courtenay</b>	<b>1227</b>	-	<b>1227</b>	<b>100</b>	<b>39</b>	<b>3167</b>	<b>2271</b>	<b>5438</b>	<b>100</b>	<b>3580</b>	<b>1071</b>	<b>4651</b>	<b>100</b>	<b>2658</b>	<b>1671</b>	<b>4329</b>	<b>100</b>	-	<b>13.0</b>	<b>32.4</b>	<b>58.7</b>
Payload	606	-	606	49	38	2863	3137	5999	110	2986	878	3864	83	2152	2007	4159	96	-	11.4	29.9	55.6
Cow Girl	448	-	448	36	36	2308	1916	4224	78	2576	1042	3618	78	1777	1479	3256	78	-	11.7	31.8	58.7
Statistically significant (P=0.05)	no		no			no	no	yes		no	no	no		yes	no				no	no	no
Coefficient of variation (%)	60.7		60.7			21.3	36.7	17.3		16.6	10.5	13.3		20.1	15.6				10.4	8.0	4.7

**Tall Fescue**

**Scott**

Cultivar	2018 Cut: June 25 / Oct 3					2019 Cut: July 4				2020 Cut: July 16				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	HGT (cm)
<b>Courtenay</b>	<b>1712</b>	-	<b>1712</b>	<b>100</b>	<b>85</b>	<b>1855</b>	-	<b>1855</b>	<b>100</b>	<b>2084</b>	-	<b>2084</b>	<b>100</b>	<b>1638</b>	-	<b>1638</b>	<b>100</b>	<b>94</b>
Payload	614	-	614	36	59	1061	-	1061	57	2061	-	2061	99	1023	-	1023	62	87
Cow Girl	814	-	814	48	70	1331	-	1331	72	1526	-	1526	73	994	-	994	61	77
Statistically significant (P=0.05)	yes		yes			yes				no		no		yes		yes		yes
Coefficient of variation (%)	47.5		47.5			34.3				16.7		16.7		29.9		29.9		10.1

**Tall Fescue**

**Melfort**

Cultivar	2018 Cut: June 27 / Aug 16					2019 Cut: July 16 / Sep 19				2020 Cut: July 6 / Sep 8				3years combined				
	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	Forage Est (%)	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	1st cut DMY (kg/ha)	2nd cut DMY (kg/ha)	Total DMY (kg/ha)	% of Courtena y	HGT (cm)
<b>Courtenay</b>	<b>1506</b>	<b>966</b>	<b>2472</b>	<b>100</b>	<b>65</b>	-	-	-	-	-	-	-	-	-	-	-	-	-
Payload	945	786	1732	70	72	-	-	-	-	-	-	-	-	-	-	-	-	-
Cow Girl	1020	570	1590	64	72	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistically significant (P=0.05)	yes	yes	yes															
Coefficient of variation (%)	33.5	25.5	25.3															

## APPENICES

**Appendix 1.** Monthly total precipitation (mm) and mean air temperature (°C) in Swift Current, SK during 2017-2020.

	Precipitation (mm)					Mean air temperature (°C)				
	2017	2018	2019	2020	Long-term	2017	2018	2019	2020	Long-term
Jan	1.4	0	0.5	4.7	16.1	-9.2	-8.1	-7.9	-10.6	-12.8
Feb	0	1.2	11.0	0.8	13.6	-4.0	-16.3	-22.2	-7.2	-10.7
Mar	0	14.6	0.2	0.9	17.6	-1.9	-6.0	-4.9	-3.8	-4.7
Apr	8.6	4.8	9.1	7.3	22.5	4.4	-0.8	5.9	1.3	4.6
May	15.4	8.8	10.9	37.1	44.4	13.0	15.2	9.6	10.7	10.9
Jun	31.9	23.6	113.9	68.9	74.2	15.7	17.1	15.7	15.3	15.4
Jul	9.3	15.1	2.9	56.9	52.2	20.7	18.7	17.6	17.7	18.6
Aug	12.7	28.3	38.3	11.2	43.4	18.4	19.0	16.7	19.2	17.7
Sep	3.2	45.4	110.7	21.4	31.8	13.3	10.4	12.2	13.0	11.9
Oct	51.7	7.9	10.5	-	19.6	4.8	4.5	1.7	-	5.6
Nov	0	6.6	7.4	-	14.2	-5.3	-4.4	-4.1	-	-3.4
Dec	0	0	0	-	15.3	-8.5	-6.2	-7.5	-	-9.6

**Appendix 2.** Monthly total precipitation (mm) and mean air temperature (°C) in Saskatoon, SK during 2017-2020.

	Precipitation (mm)					Mean air temperature (°C)				
	2017	2018	2019	2020	Long-term	2017	2018	2019	2020	Long-term
Jan	7.4	9.4	7.2	8.3	17.3	-13.1	-12.9	-14.1	-14.4	-17.5
Feb	9.1	6.1	11.1	1.5	13.0	-9.3	-18.1	-24.2	-12.4	-14.9
Mar	11.3	14.7	2.7	10.1	16.0	-5.2	-8.6	-6.1	-7.9	-7.5
Apr	18.4	9.1	0.4	10.9	21.2	4.3	-0.7	4.8	-0.6	3.5
May	46.3	35.0	4.4	42.1	39.3	12.1	14.3	9.7	11.1	10.9
Jun	30.9	19.9	84.8	106.9	65.7	16.1	17.3	16.0	15.3	15.5
Jul	25.5	31.1	67.6	52.1	57.8	19.6	18.7	17.8	19.0	18.4
Aug	25.2	17.2	20.3	16.2	42.6	17.8	17.1	15.4	18.0	17.1
Sep	29.1	37.1	39.5	23.6	34.5	12.8	7.4	12.3	11.7	11.2
Oct	17.8	8.0	11.2	-	20.1	5.0	2.5	0.8	-	4.5
Nov	15.4	15.6	13.1	-	16.1	-9.8	-6.8	-5.5	-	-5.8
Dec	6.9	4.5	4.1	-	15.9	-12.3	-10.2	-12	-	-13.9

**Appendix 3.** Monthly total precipitation (mm) and mean air temperature (°C) in Scott, SK during 2017-2020.

	Precipitation (mm)				Mean air temperature (°C)			
	2017	2018	2019	2020	2017	2018	2019	2020
Jan	6.5	6.5	10.6	10.9	-12.9	-13.9	-13.2	-15.1
Feb	6.7	4.3	18.6	7.6	-10.1	-18.5	-24.6	-12.0
Mar	9.7	24.1	2.4	13.3	-5.8	-10.0	-7.4	-9.3
Apr	30.9	8.5	6.1	16.9	3.0	-2.2	4.2	-1.5
May	69.0	29.6	12.7	51.9	11.5	13.6	9.1	9.9
Jun	34.3	29.6	97.7	55.9	15.1	16.1	14.9	14.8
Jul	22.4	48.2	107.8	123.0	18.3	17.4	16.1	17.2
Aug	53.0	23.3	18.0	27.0	16.6	16.2	14.4	16.3
Sep	18.9	52.1	41.8	31.3	11.5	6.5	11.3	10.8
Oct	20.9	9.1	6.6	-	3.8	2.1	0.9	-
Nov	21.6	13.4	15.4	-	-10.0	-6.8	-5.6	-
Dec	5.6	8.7	3.2	-	-12.9	-10.2	-11.5	-

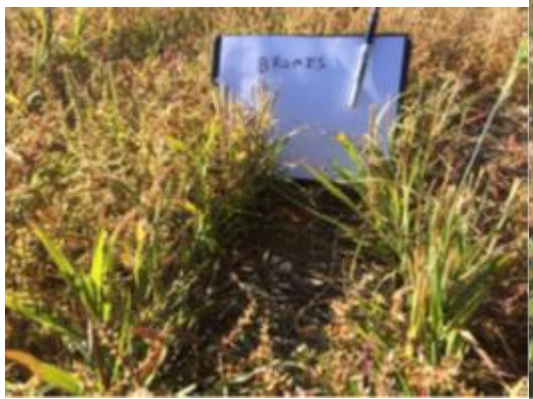
**Appendix 4.** Monthly total precipitation (mm) and mean air temperature (°C) in Melfort, SK during 2017-2020.

	Precipitation (mm)				Mean air temperature (°C)			
	2017	2018	2019	2020	2017	2018	2019	2020
Jan	12.9	17.3	14.6	14.8	-12.2	-15.8	-16.8	-14.4
Feb	3.8	2.3	10.2	10.4	-10.0	-18.9	-24.1	-13.6
Mar	18.8	31.4	2.2	14.9	-8.3	-9.3	-7.4	-9.5
Apr	23.6	5.0	4.1	11.1	2.9	-3.4	3.0	-2.9
May	46.4	38.5	18.8	26.7	10.8	13.9	8.8	2.5
Jun	44.1	46.6	87.4	103.7	15.2	16.8	15.3	14.3
Jul	33.3	69.5	72.7	52.4	18.7	17.5	16.9	18.8
Aug	3.1	43.2	30.7	18.5	17.2	15.9	14.9	17.6
Sep	13.2	42.0	43.0	21.2	12.5	6.9	11.2	10.8
Oct	43.5	8.9	11.9	-	4.3	0.9	1.0	-
Nov	7.8	20.7	14.6	-	-9.7	-9.3	-7.8	-
Dec	7.7	6.5	2.2	-	-14.1	-11.5	-14.4	-

**PHOTOS**

**Swift Current site**

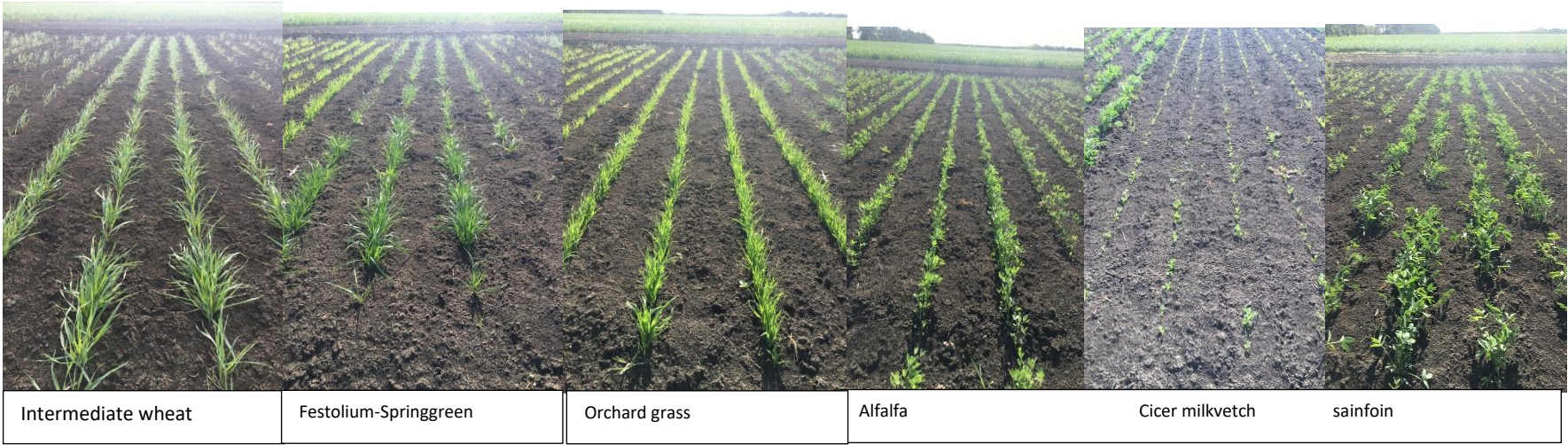
2017 Establishment





Saskatoon site

2017 Establishment



2019



Legume



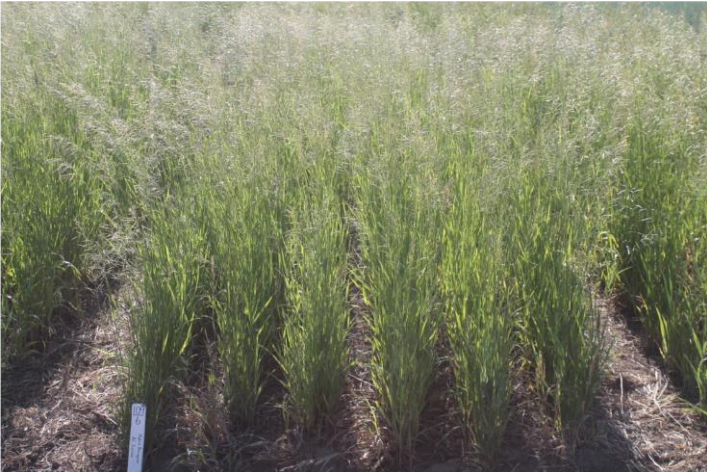
Grasses

Scott site

2017



2019



Melfort site

2019



Alfalfa



Sainfoin



Bromegrass

