SPRING 2020 ISSUE 04 PEACECOUNTRYBEEF.CA

FROM THE ROOTS UP

Your Peace Ag Connection

PUBLISHED BY THE PEACE COUNTRY BEEF & FORAGE ASSOCIATION

Peace Country Beef & Forage Association

"STRENGTHENING AGRICULTURE, ONE FARM AT A TIME"

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Having worked in the Peace Country since 1982, we have established ourselves as an innovative association, working with local businesses, educational facilities, other research groups and always with the producers from across the Peace Region.

Our programs vary from environmental concerns to finding the newest technology and helping producers implement it on their operations.

Our board is made up of producers from across the Peace Region, who actively voice questions, ideas and concerns to address the needs of farmers and ranchers of the Peace.

Mission

The Peace Country Beef & Forage Association is a producer group with the goal to be a hub of innovative, relevant and local beef, forage, soil health and crop information for Peace Country Producers.

Vision

A Peace Country producer's first stop for optimizing beef, forage, soil health and crop production to maximize profitability with innovative and credible information.

Our services include:

- Applied Research
- Extension publications & events
- Feed testing & analysis
- Soil testing & analysis
- Production decision making, technical assistance & problem solving
- Information research & referrals

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Thank You to our 2019 PCBFA Board of Directors L-R: Kelvin Krahn, John Prinse, Thomas Claydon, Allan McLachlan, Preston Basnett, Faron Steffen, Clay Armstrong, Michael Gross, Jordan Barnfield, Robbie Hale

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12 FUNDING PARTNERS

The Peace Country Beef & Forage Association would not be able to do the work we do without the support of our great funding partners!

GRAZING FOR FIRE PREVENTION

By: Marianne Krahn, PCBFA

Native Americans were well adapted to the use of fire Extensive areas across the Great Plains burned ever three to seven years, with some areas burning twice the same year. Photo by Stephen Winter.

Climate, fire, and grazing are the main three disturbance factors that have historically shaped the landscape in North America. Aboriginal peoples used fire as a regular management practice to stimulate vegetation growth, attract grazing animals such as bison and elk, and wildfire fuel control. In fact, fire was so important in the maintenance of grasslands that one of the Native American tribes from the northern plains used the same word for both prairie and fire. By keeping dead, highly flammable underbrush and grasses under control with regular burns and grazing events, this decreased the risk and the intensity of wildfires.

Some studies suggest that the combination of grazing and fire – known as pyric-herbivory - is most effective in reducing wildland fuel loads while enhancing biodiversity[1]. The historical fire-grazing interaction that occurred throughout the Prairies was a shifting mosaic of disturbances across the landscape that included areas that were burned, grazed, burned and grazed, along with regions that were not disturbed. After an area had burnt, herbivores of all kinds would concentrate on it as it greened-up. While this area was heavily utilized, other areas received very little grazing pressure. When another area would burn, the animals moved there allowing the previously heavily utilized area to rest until it would be burned and grazed again. This fire-grazing interaction would repeat itself all across the landscape with timing being determined by climate and reignition. This random disturbance pattern created a messy landscape that was critical to the conservation of biodiversity, which each disturbance alone could not create.

Nowadays, not only fire and grazing have largely been decoupled, but each of these practices alone has significantly decreased. Prescribed burns aren't as welcome anymore as our society is more inclined to leave nature alone and let it do its thing. The large herds of bisons that used to freely roam the plains are gone, while other herbivores are confined to specific areas. These changes have allowed ecosystems to accumulate more fuels that are prone to burning on a regular basis. With recent massive wildfires in Alberta, BC and other places around the world, there is a growing concern about the negative impacts of wildfires on rangelands, forests and communities. Questions regarding our current management practices are raised. Some are willing to go back to a more proactive approach to wildfire prevention.

Back to grazing as a fire prevention method?

Grazing treatments decrease fine fuel biomass, cover and height and increase fuel moisture, thereby decreasing ignition and initial spread of fire compared with ungrazed areas. Cattle grazing reduces the amount of herbaceous grassy fuels, whereas goat and sheep grazing can potentially also reduce the shrub component. Other fuel treatments that can be used include herbicides, mechanical treatments such as mowing, prescribed/controlled fires, or a combination of these treatments. Many studies have reviewed factors affecting fuel treatment costs but studies specifically on rangelands are limited. Least cost fuel treatments will vary with conditions and

objectives, but grazing alternatives appear to be cost-competitive where mowing or prescribed burns are potential alternatives.

Europe and parts of the U.S. are successfully using livestock to graze fuel breaks around communities and reduce the risk of wildfires. Closer to us, the BC Cattlemen's Association has received last year a $500,000 grant from the government of BC to develop partnerships and investigate an initiative that will use grazing livestock to manage fine fuels in parts of B.C[2]. The model aims at protecting communities and resources from fires while supporting BC ranchers and BC beef. Talk about a win-win situation! Aware that targeted grazing using livestock is not a solution to all fuel management challenges, the plan is to use it with other methods, such as prescribed burning and selective tree harvesting. This year is going to be the first field season of this project in BC. It will be interesting to see how things turn out for our BC neighbors. Could the Alberta Beef Producers be involved in a similar project in our province? That would make for a great story to tell to our customers, especially in a day and age when ruminants are vilified by mainstream media.

What can you do?

We don't know yet what the fire season is going to look like. But based on the last few years, it's reasonable to start thinking of ways to mitigate the risk of a wildfire close to you. While it's impossible to protect every acre of your property you can protect the most sensitive areas which typically include your home, shop, yard, fuel tanks, etc. Other sensitive areas could be the hay yard, an old shelterbelt around the yard, etc. Any dead grass on these areas is an invitation for problems.

Different areas require different treatments. Mowing works great on the yard or around the house. What about using livestock to clean up the dead thatch on the hay yard? Spring is the best time to do it as plants are slowly recovering from their winter dormancy and will take a while to recover. The higher the stock density the most effective the treatment will be. Graze short and hard. While the stems are still young and tender, cows will even chew on brush or trees, if not they will trample them which will set them back. Grazing hard right around the yard is a good way to create a firebreak protecting your property. Think of wind directions when choosing which paddocks need to be tackled first.

With the multiplication of massive wildfires in the last few years, fire prevention should be in our mind before the dry season starts. Having a plan and communicating that plan to those who are working with you can go a long way. Don't wait until it's too late to think about it!

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1 Patch Burning: Integrating Fire and Grazing to Promote Heterogeneity, Department of Natural Resource Ecology and Management, Oklahoma Cooperative Extension Service Oklahoma State University, 2013

2 https://news.gov.bc.ca/releases/2019FL-NR0153-001067

GRASSHOPPERS: THINGS YOU SHOULD KNOW

Alberta Pest Monitoring Network

2019 saw significant grasshopper pressure across much of the Peace Country. So what does that mean for the 2020 crop year?

Grasshopper Identification

When scouting for grasshoppers, it is imperitive to know what species to be on the look out for. There are three common pest species of grasshoppers that we find in the Peace Country.

Clear Winged Grasshopper: The younger instars are black or black and white, The adults wings are clear and mottled with dark patches. This is the most common pest species of grasshopper in Alberta. They prefer to feed on grassy plants, such as cereals and pasture grasses. There is one generation of this species per year. They lay their eggs in the fall, usually in unbroken sod. The short vegetation of dry, mowed roadsides and sparse, over-grazed pastures is especially favoured for egg deposition. They hatch in May-June, but what gives the Clear Winged grasshopper an edge is that the young complete the majority of their development in the fall. Meaning once they hatch they can go straight to eatting.

Two-Striped Grasshopper: These grasshoppers are brown to greenish brown in colour. As they mature they will develop pale stripes on their back from the eyes to the tips of the forewings. They also have a solid black stripe on the back legs that runs parallel with the leg. Two-striped grasshoppers feed on grasses and broad-leaved plants, and the broad-leaved plants are necessary for maximum growth. They prefer the lush growth around edges of streams, marshes and cultivated fields. Hosts include weeds and most crops, especially alfalfa and vegetables, and occasionally trees and shrubs. There is one generation of this specied per year. Eggs are laid on the soil, and eggs begin hatching once the air temperature gets above 20°C and soil moisture between 10 and 20 per cent.

Packard's Grasshopper: Bright green in color. Packard's grasshoppers prefer herbs to grasses. They cause little damage to range land, but will damage field and garden crops and legume pastures. It feeds on leaves, stems and flowers of many plants. Cereals and alfalfa are favourites of this species. There is one generation of Packard's per year. Eggs hatch between early May and mid July, depending upon temperature and moisture conditions. Nymphs, which are green or fawn coloured, grow into an adult in three to seven weeks. In cooler seasons, development is slowed and nymphs can persist into the fall.

At high numbers any type of grasshopper is considered a pest. Assess the damage present. If the damage needs control to prevent economic loss and the loss is greater than the cost of the control, then control should be taken.

Grasshopper Control

Cropping Considerations

It is important to control the grasshoppers before they become winged. A good size is 7-16 mm in length, or1/2 to ¾ of an inch. Once they become winged they are much harder to kill.

Talk to your neighbours. Try to get large groups of farmers in one area to agree to control the grasshopper populations. This way the grasshoppers won't migrate from their unsprayed land onto yours.

Temperature: Avoid spraying when it is really hot. At higher temperatures, grasshoppers can metabolize the chemical faster and some

Above l-r: Clear Winged Grasshopper, Two-Striped Grasshopper, Packard's Grasshopper & Bruner's Spur-Throated Grasshopper

chemicals won't be nearly as effective. Avoid spraying when it is cold, as the grasshoppers may be near the ground surface, under the canopy trying to stay warm, making it harder to reach them with the chemical. The ideal temperature range for spraying grasshoppers is around 20 to 25 degrees Celsius, as most chemicals fit into this range and the grasshoppers should be active. Check the label for the temperature range of whatever chemical you are using to maximize its effectiveness.

It is important to be realistic. If you have high population numbers, even with a 90% kill with an insecticide there may be numbers left that are still higher than the thresholds. Be aware of this. It might not be that the chemical is not working; it could just be that your numbers were so high to start with.

Insecticides may harm beneficial insects needed to pollinate some crops. For this reason avoid spraying when the crop is in bloom.

Pasture/Grazing Considerations

Each insecticide has a different interval for the length of time that cattle have to be left out of the treated field before grazing. It can range from immediately after application (Sevin) to up to 14 days after application (Matador).

When applying insecticide to pasture or hay land check to make sure that the insecticide is registered for all species of forage in the mix. An example of this is Decis. It is only registered on alfalfa for seed production, not for forage.

2020 Forecast

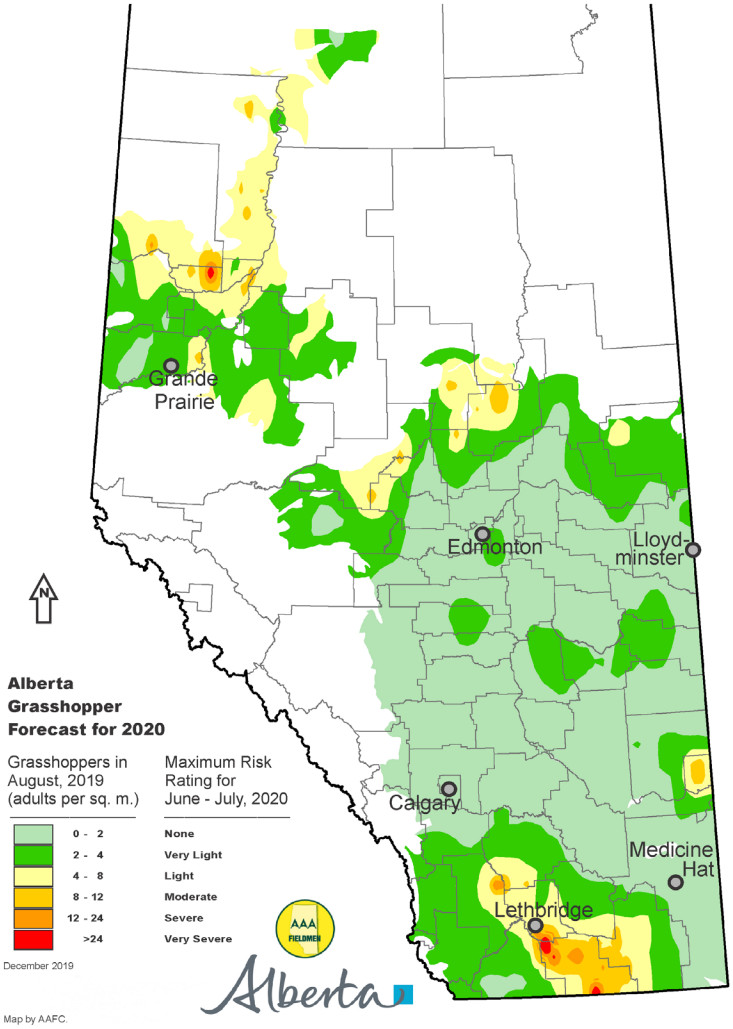
The 2020 grasshopper forecast is based on adult grasshoppers counts conducted in early August 2019 by across the province.

The adult grasshopper counts give an indication of the number of individuals capable of reproduction and egg laying. Environmental factors can result in higher or lower actual populations than forecast. Individual producers need to be aware of the potential risks in their area and monitor fields accordingly and then make the appropriate decisions if control measures are required.

The 2019 grasshopper survey found moderate to high levels of grasshoppers throughout most of the Peace River Region and northern portions of central Alberta. Investigations in the Peace and northern portions of central Alberta indicate that the most common species, Bruner's spur-throat grasshopper, was in low numbers in 2018 but higher in 2019. This is a species that wasn't recognized as a pest until very recently. Bruner's spur-throat grasshopper also has documented populations of biennial lifecycle. This biennial lifecycle has a profound its impact on grasshopper forecasts.

Note that a forecast for a particular year is based on the grasshopper count from the previous August. If the grasshopper population in the Peace River Region and northern central Alberta is following a biennial cycle then the grasshopper counts from 2019 indicate that 2020 will be a low grasshopper year followed by a higher population in 2021.

This information was republished with permission from the Alberta Pest Monitoring Netwrok.



DID YOU KNOW... PCBFA'S 2019 STATS

WITH HELP FROM YOU...
Local applied research and extension becomes a reality.

The Peace Country Beef & Forage Association is a local producer group that strives to be the hub of innovative, relevant, and local beef and forage information for Peace Country Producers.

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1,300
Small Plots

16
On-Farm Trials

3
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846
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862
Twitter Followers

461
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5,000
Emails Sent

4,796
People Visited Our Website

10
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APPLIED RESEARCH

DEMONSTRATION OF 16 PERENNIAL GRASSES IN THE PEACE

Buthaina Al-Maqtari & Akim Omokanye, PCBFA

The majority of the annual feed requirement of Alberta's cow herd comes from perennial forages, including both grass and legume. They make up one of the largest sources of livestock feed on the prairies. Every year, new forage varieties are registered for hay and pasture. This article is intended to provide an insight into the performance of a variety of perennial grasses one year after establishment. PCBFA has perennial forage trials at different sites. These trials will last for a few years and will provide producers with yearly production and quality performance.

The majority of the annual feed requirement of Alberta's cow herd comes from perennial forages, including grasses.

How were the grasses established?

16 grasses were seeded at 2 sites (Mack Erno's Farm at Teepee Creek (SE 33-73-03-W6) and Fairview Research Farm (NW 5-82-03 W6) on RR#35 MD of Fairview. The site at Teepee Creek had canola the year before seeding the grasses. We did a pre-seed burn off with Express + Roundup before seeding. The site at Fairview Research Farm was left fallow in 2017, but had oats grown for green feed in 2016. The soil characteristics at both sites in the surface soil (0-6") are shown in Table 1.

At each site, we arranged the 16 grasses in a randomized complete block design with three replicates. Each plot size was 1.8m x 8m. The seeded grasses are listed below.

Table 1: Soil Characteristics at the sites at seeding

Soil Characteristics	Teepee Creek	Fairview
Soil Quality		
pH	5.5 (Acidic)	5.4 (Acidic)
Organic matter %	5.2 (Normal)	7.1 (Normal)
EC (dS/m)	0.37 (Good)	0.44 (Good)
Nutrient Analysis (ppm)		
Nitrate-N	36 (Marginal)	48 (Optimum)
P	14 (Deficient)	26 (Marginal)
K	199 (Optimum)	122 (Marginal)
Sulphate-S	13 (Optimum)	8 (Optimum)
Ca	1160 (Optimum)	1840 (Excess)
Mg	340 (Optimum)	337 (Optimum)

1. Carlton Smooth Bromegrass
2. Catapult Timothy
3. MBA Meadow Bromegrass
4. Alma Timothy
5. AC Knowles Bromegrass
6. Sheep Fescue
7. Fleet Meadow Bromegrass
8. Courtney Tall Fescue
9. Tall Fescue/ Meadow Fescue (Milkway)
10. HPS Tell Fescue
11. Intermediate Wheatgrass
12. Crested Wheatgrass (Fairway)
13. Slender Wheatgrass (Revenue)
14. Creek- Orca Orchard Grass
15. Greenleaf Pubescent Wheatgrass
16. Killarney Orchard Grass

The grasses were spring seeded in 2018. Both sites were sprayed with Curtail M during crop growth. No fertilizer was applied as the soil tests indicated

sufficient amounts of most nutrients.

One year after seeding, the grasses were harvested for determination of forage yield and quality on August 13, 2019 and July 4, 2019 at Teepee Creek and Fairview respectively.

Field data were subjected to analysis of variance (ANOVA) using R statistical software. When ANOVA indicated significant treatment effects, means were separated by the least significant difference (LSD) at the 0.05 probability level.

Our Findings

Forage Moisture & Yield: Forage moisture is a good indicator of forage yield. At Teepee Creek, both forage moisture content at harvest and forage dry matter yield (DMY) were higher than Fairview (Table 1).

At Teepee Creek, the forage DMY varied from 3,587 - 8,377 Ibs/care. Seven of the sixteen grasses produced a DMY that was higher than 7000 Ibs/acre. The highest DMY was with Carlton Smooth Bromegrass. In Fairview, the perennials had a forage DMY varied from 2,202 - 5,153 lbs/acre at Fairview Research Farm. Seven of the sixteen grasses had > 4000 Ibs DM yield/ acre or higher, with the highest DMY coming from Greenleaf Pubescent Wheatgrass. The yield in Fairview is considered generally low which is likely the result of the initially very dry soil moisture conditions at some point earlier in the growing season.

Forage Quality: The forage crude protein (CP) of grasses was mostly above 11% CP for Fairview site. Alma Timothy had the highest forage CP (16.0% CP), followed by Courtney Tall Fescue (15.0% CP) and then Killarney Orchard Grass/Fleet Meadow Bromegrass (14.0% CP) at Fairview Research Farm. Compared to Fairview, Teepee Creek had lower forage CP content, which varied from 6.30 - 10.7%CP. In general, the 11%CP or more obtained for Fairview grasses met the protein requirements of mature beef cattle. The grasses at Teepee Creek were mostly able to conveniently meet the protein requirement of a dry gestating beef cow in mid-pregnancy (2nd trimester) (Table 2).

Energy (determined by total digestible nutrients, TDN) was highest for Courtney Tall Fescue 70.0% TDN) at Teepee Creek (Table 1). Also at Teepee Creek, both Sheep Fescue and Slender Wheatgrass had lower

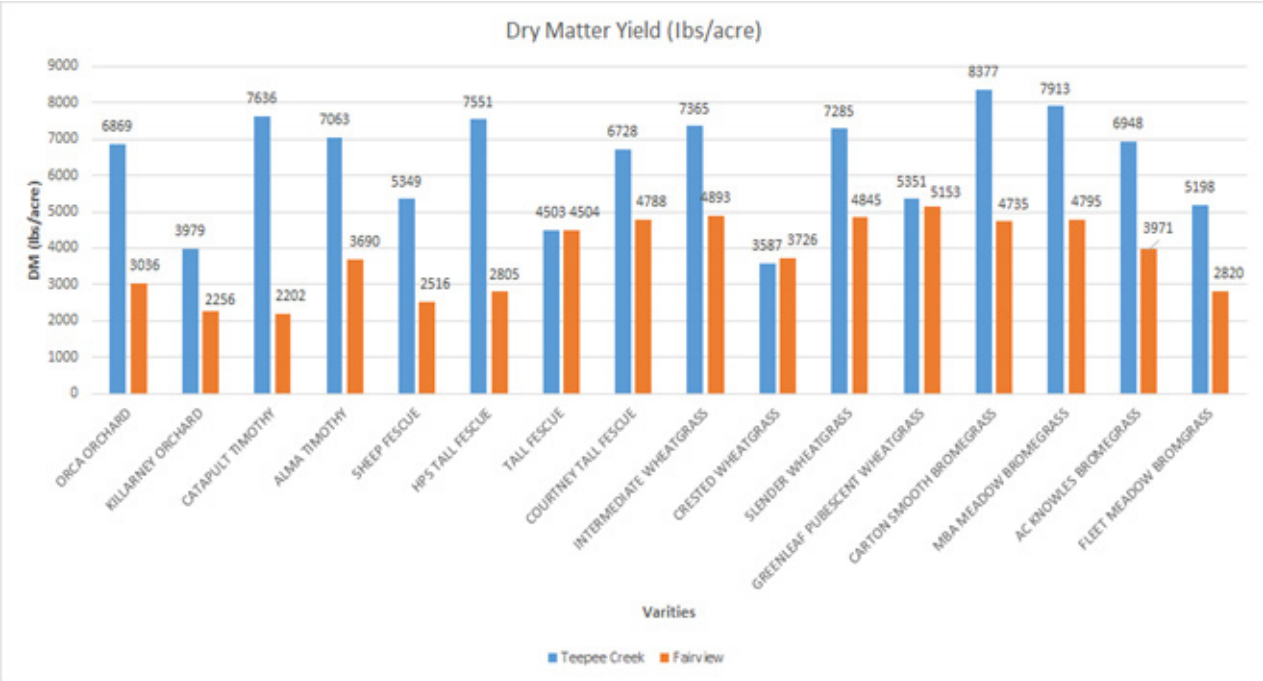

Figure 1. The Dry Matter Yield (Ibs/acre) of 16 perennial grasses established in 2018 in Teepee Creek and Fairview, AB

forage TDN than other grasses. The forage energy (%TDN) of perennial grasses grown in Fairview varied from 62.5 - 72.6 % TDN (Table 1). Both Orca Orchard Grass and Catapult Timothy had >70% TDN and higher than other grasses.

In trying to match the forage TDN for the grasses at both sites, only 6 of the grasses seemed to have sufficient TDN for mature beef cattle at different physiological stages (55, 60 or 65% TDN) at Teepee Creek. Others mostly had sufficient %TDN for a dry gestating beef cow at late-pregnancy (60% TDN).

At Fairview Research Farm, except for 3 grasses (Sheep Fescue, Slender Wheatgrass and Greenleaf Pubescent Wheatgrass), the grasses tested had adequate %TDN for mature beef cattle. Sheep Fescue, Slender Wheatgrass and Greenleaf Pubescent Wheatgrass were able to meet the %TDN requirements of dry gestating beef cows.

Conclusion

The perennials grown in Teepee Creek had a higher dry matter yield (Ibs/acre) when compared to those grown in Fairview. Carton Smooth Bromegrass, MBA Meadow Bromegrass, Intermediate Wheatgrass and Slender Wheatgrass seemed to fare better in forage DM yield than most grasses at both sites. Fairview generally showed better forage quality (protein and energy) than Teepee Creek. Early harvest at Fairview (July 4) than Teepee Creek (August 13) was thought to be responsible for the differences in forage quality. Rainfall and high soil moisture condition delayed harvesting at Teepee Creek. So, the grasses were mature at harvest.

Grass Species/ Varieties	Fairview			Teepee Creek		
	Moisture %	TDN %	CP%	Moisture %	TDN %	CP%
Orca Orchard	21.0	72.6	13.4	71.3	64.1	7.78
Killarney Orchard	18.8	65.6	14.2	71.7	62.4	8.43
Catapult Timothy	15.9	70.4	13.3	71.7	65.6	10.68
Alma Timothy	28.4	66.7	16.0	56.8	63.9	7.36
Sheep Fescue	13.9	62.5	9.03	54.0	56.5	6.61
HPS Tall Fescue	17.7	68.6	12.9	65.3	60.7	7.72
Tall Fescue (common)	21.1	67.3	12.2	74.5	65.4	10.43
Courtney Tall Fescue	20.9	68.6	15.0	71.9	70.3	8.73
Intermediate Wheatgrass	21.8	65.7	11.3	58.6	60.0	8.40
Crested Wheatgrass	15.5	65.6	10.5	54.4	62.1	9.17
Slender Wheatgrass	13.0	63.1	11.9	52.4	58.2	6.29
Greenleaf Pubescent Wheatgrass	22.3	63.9	11.2	71.9	61.9	8.73
Carton Smooth Bromegrass	25.0	66.7	12.0	52.6	64.2	6.88
MBA Meadow Bromegrass	24.0	68.7	12.5	55.2	65.0	6.62
AC Knowles Bromegrass	21.8	67.6	12.0	66.0	66.7	8.27
Fleet Meadow Bromgrass	25.2	68.3	14.0	66.5	65.3	8.67

Table 2. Moisture%, TDN%, and CP% of the 16 perennial grasses established in Fairview and Teepee Creek in 2018

THANK YOU TO ALL OUR FUNDING PARTNERS

WORKING TOGETHER WITH AGRICULTURAL SERVICE BOARDS ACROSS THE PEACE