

# HIGH LEGUME PASTURES

**Creating profit above ground and wealth below.**

## High Legume Pastures...

- increase calf and yearling weight gains or cow body condition scores.
- extend pasture productivity and quality during and beyond the “summer slump” of tame grasses.
- add biodiversity of plant multi-functional species to increase interactions with soil organisms for increased soil health.
- fix nitrogen to reduce fertilizer costs and increase forage production/profit as well as capture soil carbon.
- provide root systems to different profiles in the soil, therefore increasing utilization of soil moisture and increasing carbon capture depths.
- are more drought averse to help stabilize yields in drier years.

## AAC Mountainview Sainfoin...

- is a no-bloat legume containing tannins that can greatly reduce the risk of bloat from alfalfa when in a mixed stand.
- was developed by Dr. Surya Acharya, Agriculture and Agri-Food Canada, Lethbridge.
- has a similar growth and regrowth pattern to alfalfa as well as yield.
- competes with alfalfa, ensuring it stays in the pasture longer to provide bloat control.

*In partnership with eleven forage and applied research associations, twelve producers across Alberta, through the Agricultural Research and Extension Council of Alberta (ARECA), and in consultation with high legume grazing mentors with financial and economic analysis, Alberta Agriculture and Forestry (AF) staff coordinated a two year field trial to demonstrate the potential of sainfoin in a high-legume pasture mix on field scale level.*

### Take away lessons...

**Establishment 2016:** When establishing forages, seedbed preparation is key. Ensure the seedbed is firm prior to seeding using harrow packers or equivalent.



**Grazing 2017:** Seed set matters. Enough plant material needs to be left after grazing that at least some of the plants get the chance to set seed and drop viable seed for new plants to grow. Forage establishment is an ongoing yearly process to ensure the longevity of the pasture stand.



- \* The project’s goal was 60% legume establishment in the pasture with the remaining 40% grass/legume the choice of the producer.
- \* Grazing research at Lethbridge and Swift Current has shown a 95-98% bloat reduction when 25% sainfoin is present in an alfalfa/sainfoin stand.

### Forages for Soil Health

In this thought provoking BCRC webinar, Henry Janzen from Agriculture and Agri-Food Canada, discusses the links between growing perennial forages and soil health. [BCRC webinar—February 21, 2018](#)

### Practical Applications of Forage Rejuvenation

Dr. Mike Schellenberg, Range and Forage Plant Ecologist at AAFC in Swift Current, outlines things to consider when rejuvenating a forage stand. [BCRC webinar—February 24, 2016](#)



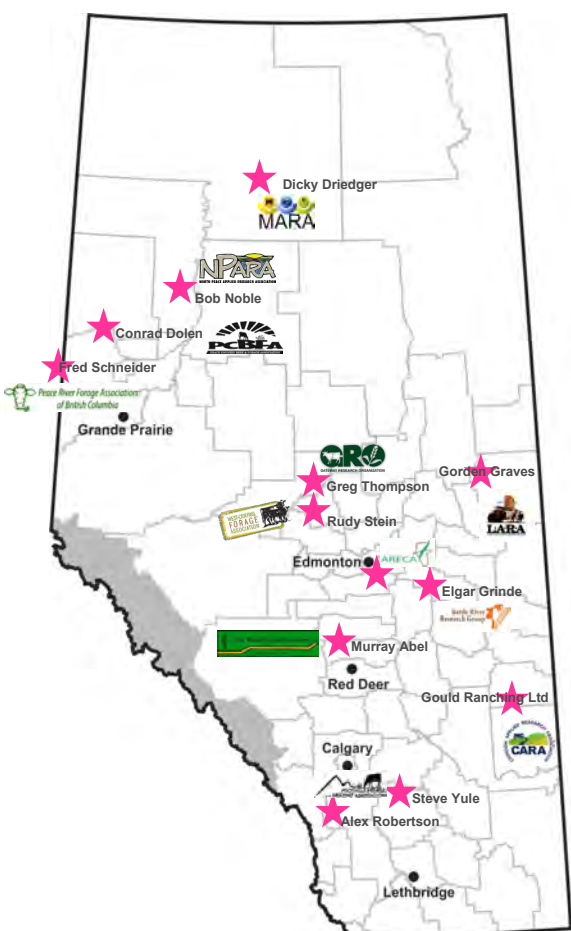
**Tough  
Enough to  
Grow Pink**

Bill & Larissa Newton

### Let cattle do the seeding

A number of cattlemen are doing just that, letting the cattle do the seeding to rejuvenate or add to their existing pasture stands.

Legume seeds are well suited to this manure/seeding technique due to their hard seed coats. Many of the seeds pass through the animal’s digestive system without being damaged. Letting some of the pasture plants mature and set seed then turning livestock into graze is a great strategy for redistribution of the seeds in the manure. [October 27, 2016 BCRC Blog](#)



## 2016 Experiences

During the summer of 2016, eleven events were co-hosted with project teams. In addition to hearing from cooperating producers and seeing the progress in the fields, grazers with many years of involvement in using higher legume pastures came to share their experiences and answer questions at each field day. These "Grazing Mentors" had provided multiple years of economic and financial data to the AgriProfit\$ program for analysis and could speak to not only their experience, but also how it affected their financial bottom line. For the full report on year one, please refer to the [Summary of High Legume Pastures Year 1 for Associations](#).



High legume pasture establishment and grazing at Bob Noble's site, Manning, the first week of July 2017. Photo credits to Nora Paulovich

## Year Two Experiences

The growing season of 2017 varied across Alberta with very little rain experienced in the south/central and northwest portions to high accumulations in the north/central and northeast parts. With varied establishment successes from 2016, the grazing experiences of 2017 were also mixed. Below are the experiences and stories that developed over the 2017 growing/grazing season.



Sheep grazing the newly established site at Stein's (West Central Forage Association) November 2016. The stand establishment was rated as excellent. No sheep bloated. This stand was one of the few that was rated as excellent after the first year. Many of the other stands had issues with moisture, weeds, etc.

### Making Forage Mixtures Work for You

Dr. Yousef Papadopoulos outlines the principles of selecting forage species based on the type of cattle being grazed to get as long a season as possible. BCRC Webinar—February 15, 2017



Elgar Grinde's site at Holden, August 2017

**PROFIT PER ACRE IS FAR MORE IMPORTANT THAN PROFIT PER COW**  
Burke Teichert

### Why should you consider a high legume pasture...?

2004-2010 **25%** more grazing days and **31%** more profit/acre from grass/legume pasture compared to tame grass alone

2013-2015 **57%** more grazing days and **92%** more profit/acre from grass/legume pasture compared to tame grass alone

Source: 2004-2010 AgriProfit\$ Benchmarks Cost/Return ave. of Alberta Alberta cow/calf pastures, Dale Kallfelz

2013-2015 AgriProfit\$ Benchmarks Cost/Return ave. of Central Alberta Cow/calf pastures, Anatoly Gainsky



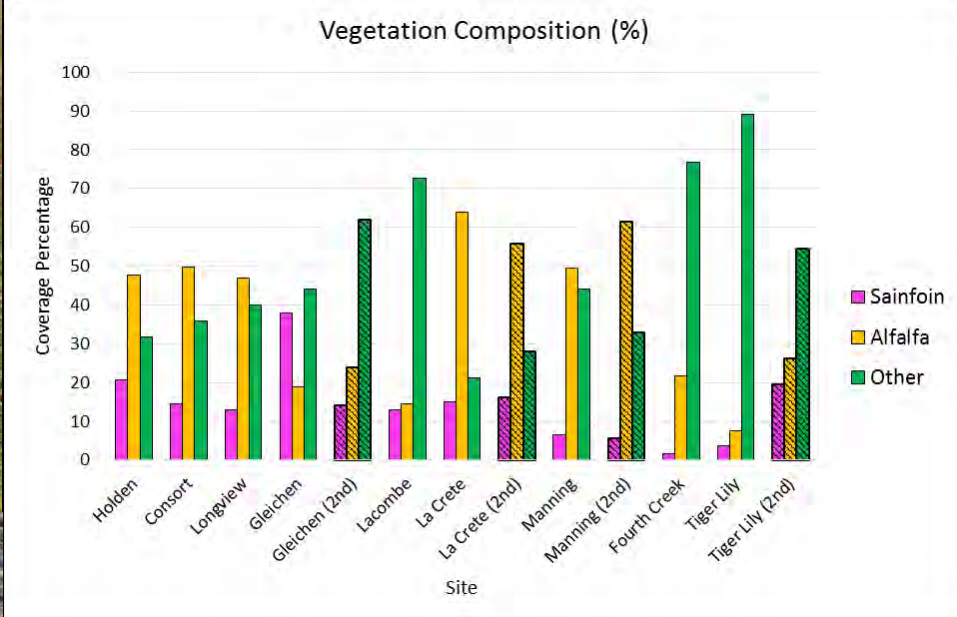
June 13, 2017 at Murray Abel's site, GWFA Photo credit Ginette Bouchard



After a dry summer, Gould Ranching finally started to see some moisture in late August. Due to the dry conditions they had not grazed the site prior to the rains so sainfoin plants had a chance to set seed. This photo of a germinated sainfoin seed was taken October 17, 2017. Photo Credit Lacey Gould



Dicky Dreidger's site at La Crete summer 2017—MARA Photo credit Sabrina Westra



Vegetation composition of nine sites in 2017. Non-hashed bars were averaged on the first clipping (June – July, 2017). Hash marked bars indicated the second clipping data from selected sites (August – September, 2017)

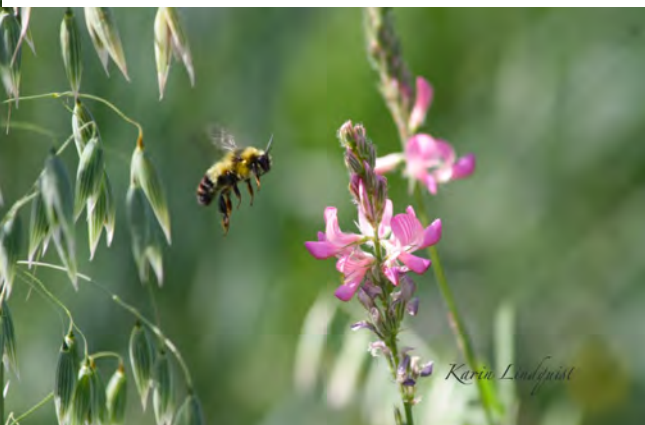


(left) One of two FFGA sites. This one is Alex Robertson's at Longview.

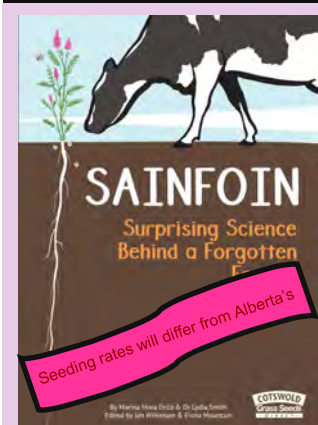
In June 2017, Alex was concerned about the wild mustard and weeds so he cut the site on July 14th and baled on July 17th getting about 1500 lbs/acre.

By August 31, the sainfoin was setting seed. Alex noted that the deer moved in and preferred to graze the sainfoin seed heads instead of alfalfa.

Alex Robertson



Developing a diverse stand of forage allows for greater biodiversity within the soil as well as more biodiversity of flora and fauna above ground.



The LegumePlus project was a 4 year research project carried out with funding from the EU. The key objectives were to study how bioactive forage legumes such as sainfoin and birdsfoot trefoil could improve the utilization of protein in ruminants. It has also been found that these legumes combat parasitic nematodes. Source: [legumeplus.eu](http://legumeplus.eu)

**Sainfoin**  
(derived from the French words... **sain= healthy** and **foin= hay**)  
Latin name: **Onobrychis viciifolia**

Have you ever checked out [Foragebeef.ca](http://Foragebeef.ca) ?

If not, you should!

Topics on the website that relate to high legume pastures include...

[Legume grazing](#) [Bloat in pastures](#)

### Dr. Surya Acharya

Old varieties of sainfoin from the 60's and 70's could not stand up to the competition of other plants and grazing pressures so sainfoin has been a crop that was ignored...until now. Dr. Surya Acharya, a plant breeder at Agriculture and Agri-Food Canada in Lethbridge recently developed **AC Mountainview Sainfoin** and he is working on others.

What is most exciting about this crop of the past, which is similar in quality and production to alfalfa, is that sainfoin contains tannins which help ruminants process plant proteins more efficiently and in turn prevents bloat. And if that wasn't enough to get you considering sainfoin, it has been known for years in the EU to control parasitic intestinal worms. With GHGs being a hot topic of study, sainfoin is also being researched to determine its potential for reducing methane gas emissions.

Wondering where you can get more information about high legume pastures?

Contact your local Applied Research and Extension Association (map with links on page 1)

or the **Ag Info Centre at 310-FARM (3276)**