Over the Fenceline

Battle River Research Group

Summer Growth

Summer 2014

Words from the Office

A big thank you and good bye to our summer student Amanda who will be returning to school this fall. Study hard and best of luck in your last year.

It's hard to believe that summer is coming to a close and harvest is just around the corner, although anyone haying or making sileage has already started the process. We would like to wish everyone a bountiful fall, but most of all, a SAFE fall. Please be careful out there as late nights bring tired farmers! Look for our first ever corn results in the Annual Report of 2014. We are happy to report that the corn seeder worked very well.

Harvesting Flax

Modified from http://mfga.ca/farmers-resources/harvesting-flax/ (Manitoba Flax Growers Association)

Desiccation and Swathing

Flax can be chemically desiccated or swathed to dry down stalk tissue and green weeds after the crop has reached physiological maturity (75% of bolls are brown). Dessicated crops can then be straight combined, but swathing may be preferred when the crop is not uniform in maturity; in a swath seeds are also less susceptible to frost damage. Timing is important for swathing and/or dessication operations, as desiccation or swathing prematurely will reduce yield.

Flax can withstand weathering conditions better than canola, as the flax bolls are less susceptible to shelling out than are canola pods. If in a late fall situation where standing flax still remains, swathed flax may be easier to pick-up later this fall or next spring if the need arises. If left un-swathed, the weight of snow on the crop may result in significant stalk breakage and/or lodging. The longer the crop is exposed to freeze-thaw conditions, the more the seed quality and appearance will be reduced. Also, flaxseed overwintered in the field is less suitable for the human consumption market.

Combining

Flax seed with a moisture content of 10% can be safely combined without the need for drying. The combine must be adjusted correctly to minimize seed coat damage to flax. If seed is very dry and the cylinder speed is too high, significant seed damage can occur.

Straw Management

Flax straw can cause problems in seeding subsequent crops if it is chopped and spread, since the straw decomposes very slowly. The straw can be baled and sold to several industries that process the straw. To be sold, straw must be free of weeds and garbage. As a last resort, the straw can be burned.

Storage

The moisture content in flax can be reduced with aeration under the right conditions, as with canola, but in late fall, a grain dryer may be more effective in bringing the moisture content down to a storable level. Flax is considered tough from 10.1 to 13.5% moisture and damp if over 13.5% moisture.

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Timing Field Pea Harvest

Field pea plants mature from the bottom up, which means seeds in the pods on lower plant branches will be more mature at harvest than those near the top. Harvesting too soon can result in immature seeds in the sample while harvesting too late can result in excess shattering. Green pea is more susceptible to bleaching if harvested late, while harvesting too early can cause a grade reduction in yellow pea varieties. There are some general harvest timing guidelines to consider for the timing of field pea harvest.

Various systems can be used to harvest pea including swathing and combining when dry, allowing the field to mature while standing and straight combining, spraying with a desiccant and swathing directly ahead of the combine or direct combining a desiccated crop. Whether swathing or desiccating, the timing of the operation is the same.

Swathing or desiccating is carried out when the bottom one third of the pods are ripe, the middle one third of the pods and vines are yellow-coloured and the upper one third are in the process of turning yellow. Ripeness of the lower pods is when the pods are dry and seeds are detached from the pods causing the pods to rattle when shaken. Seeds in the lower pods should not split when squeezed. Seeds in the middle pods will split when squeezed, while seeds in the top pods can be split with one's fingernail but no water emerges; if water emerges, wait to swath or desiccate. Seed colour is especially important with achieving a high green pea grade. Green pea is susceptible to bleaching as it nears maturity, which causes downgrading if greater than 2 per cent. With green pea, the vein pattern in the upper pods should be easily recognizable and 75 to 90 per cent of the pods should have turned to a yellow colour.

A crop desiccant facilitates greater harvest ease by drying immature green pea vegetation, especially at the top of pea plants, and also dries green weeds. Reglone, a contact herbicide, continues to be a popular pea desiccant. While enhancing dry down of the vegetation, Reglone does not hasten crop maturity, however, reduces the time from maturity to threshing readiness, as well as reducing shattering loss. Desiccation is especially recommended for green pea, reducing the time to harvest and resulting in a good green coloured seed. The effectiveness of Reglone may be enhanced when applied on cloudy days or just prior to nightfall.

If the pea field has many perennial weeds like Canada thistle, sow thistle, dandelion, toadflax or quackgrass, instead of desiccating with Reglone, glyphosate can be applied as a pre-harvest weed management tool. Glyphosate is applied at the same time as previously mentioned for Reglone and will provide some crop dry down, but this benefit is inconsistent and is unlikely to occur if cool, wet weather conditions are present. Overall crop dry down takes longer to achieve with glyphosate than with Reglone. One can generally thresh a pea crop seven to ten days after Reglone desiccation; however, it takes two to three weeks for the crop to dry down with glyphosate. Due to reduction in the seed's ability to germinate, re-planting the seed from a pea crop that was applied with glyphosate is not recommended.

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Over the Fenceline

Not All Sainfoin is Created Equal

The development and release of the new AC Mountainview sainfoin has caused a bit of a stir in the forage world. The renewed interest in sainfoin coupled with an apparent increase in forage establishment has led to higher than expected sainfoin sales. Some retailers have even begun to import sainfoin seed from the U.S., but not all sanfoin has been created equal and it is important to make sure that you know what you are buying.

Sainfoin is a plant that was heavily researched in the 60s and 70s as a non-bloat alternative to alfalfa that could be grown in the drier, alkaline areas of the North American Prairies. The earliest plants were imported from Russia and other parts of Europe, and used to develop local varieties. Melrose and Nova were the two varieties developed and registered in Canada, and most of the Canadian grown seed in the market today is assumed to come from these varieties.

Soon after their introduction into the marketplace, sainfoin quickly fell into the background and out of favor. Up to this point sainfoin was selected for biomass production and winter hardiness. The result was the development of varieties that had excellent production when grown in a pure stand for hay or once over fall grazing, but were not suitable for a multi cut hay or grazing systems. Forage growers found that although sainfoin was palatable, it just did not persist more than one or two growing seasons in mixed stands and so was not worth the high cost of seed.

Research on sainfoin has declined in North America with dwindling market demand and gradually Canadian growers stopped producing pedigreed seed. There are a few seed growers in the U.S. that are producing pedigreed seed, however none of their varieties are registered with the Canadian Food Inspection Agency so none of their pedigreed seed is being sold in Canada. As a result only Common Sainfoin seed is available in Canada. That means that any sainfoin currently being purchased has a low requirement for weed cleanliness and germination, and may not be suitable for the Canadian climate.

The new AC Mountainview is a different kind of sainfoin and unique in North America. This new variety was selected from populations being grown with alfalfa under a multi cut system. The resulting variety has excellent regrowth and the potential to persist in stands of alfalfa. The idea is that the tannins in the sainfoin when seeded in the right proportion with the alfalfa will buffer the bloat risk of the alfalfa and allow producers to safely graze a high quality, highly productive forage stand. Early research in this intensive grazing system is showing promise.

Currently Northstar Seeds owns the rights to market the AC Mountainview sainfoin, and will begin multiplying the seed as soon as they can produce certified seed. It was hoped to have product to market for the 2014 growing season, however hail damage to the Breeder seed fields has slowed down production considerably. The new outlook is for pedigreed seed to be available in 2016.

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OVER THE FENCELINE

Fall Harvest Management of Alfalfa

Introduction

Alfalfa is a perennial plant that stores carbohydrates or food reserves in the crown and roots. These reserves are utilized for over wintering purposes, to initiate growth in the spring and after each cutting. Carbohydrate reserves follow a cyclical pattern of storage and depletion (Figure 1). The best harvest strategies utilize this pattern to provide the maximum forage yield and quality while maintaining reserves at levels conducive to stand productivity and longevity.

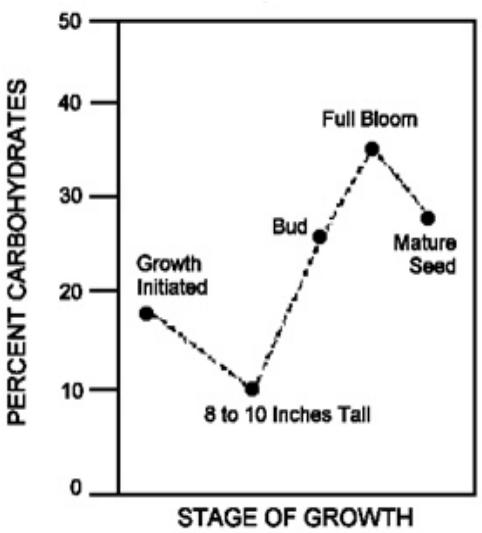


Figure 1: Carbohydrate levels in alfalfa roots. Source: Manitoba FRA

How Does Cutting Affect Winter Hardiness and Winterkill?

When an alfalfa plant is cut, the initial regrowth that follows is produced from root reserves. As new leaves are developed, they begin to manufacture their own energy (carbohydrates) for growth. When the stand is two and a half to three metres (eight to ten feet) tall, it has manufactured enough energy to once again replenish the root reserves. In the fall, this normally takes four to six weeks, and must be completed prior to the first killing frost (-5 o Celsius). As a result, this four to six week period is referred to the 'Critical Fall Harvest Period' (CFHP). In the fall, the final cut should be timed either early enough to allow reserves to build up, prior to the first killing frost or cut late enough so that lower fall temperatures prevent additional growth from occurring.

Other Factors that Affect Winter Hardiness and Winterkill

Winter injury of alfalfa is complex as it is not caused by cutting during the critical fall period alone. In fact, a study by Agriculture and Agri-food Canada at Swift Current on irrigated alfalfa, found that only once in eight years of testing did a September harvest reduce stand and yield.

In the fall, alfalfa undergoes a hardening process which allows it to withstand soil temperatures as low as -20° C. A number of factors including cutting management can affect winter survival, including:

1. Choice of variety. The aforementioned study on irrigated alfalfa found that in two out of three winterkill events during the 1980's, the selection of a winterhardy variety was more important than the previous fall harvest date in determining winter survival.
2. Warm, moist fall weather that is unfavourable for hardening of the plants.
3. Alternate freezing and thawing of the ground during the winter or early fall.
4. Surface icing during the winter or early spring.
5. Winters that are longer than the normal dormancy period.
6. Long periods of drought in the summer and fall, causing plants to dry out before or soon after winter starts.
7. Disease infection, causing weakening of the plants

Can I Cut My Alfalfa Stand in the Fall?

Present recommendations are to not cut alfalfa stands during the critical fall harvest period. However, many producers harvest second cut alfalfa in late August and early September to maximize production and ensure a window of good harvest weather.

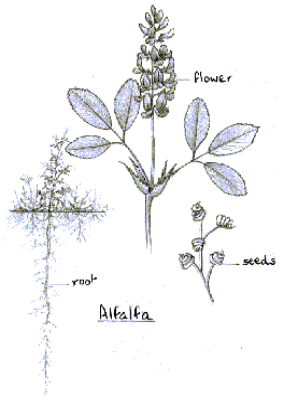
Since cutting is just one of the factors that may contribute to winter-kill, cutting at this time is often a risk that many producers are willing to take. Taking a second cut during the CFHP may be a strategy on years when feed is in short supply, or when feed prices are high. Not cutting in the CFHP is advised where stands are seeded on problem soils that may be difficult to work down and reseed. Producers need to weigh the risk of the possible loss of a stand or the reduction in stand life against the value of the forage being harvested.

continued on next page

Fall Harvest Management of Alfalfa...*continued*

How Can I Reduce the Risk of Winterkill?

1. Select the proper field. When possible, seed alfalfa on land with good drainage, low salt levels and a neutral pH.
2. Maintain soil fertility levels. Well-nourished alfalfa stands that are fertilized with adequate levels of phosphorus, potassium and sulfur are better able to resist and recover from diseases often associated with winterkilling. Potassium has been shown to increase winter-hardiness.
3. Seed hardy varieties. Plant only varieties that have good cold tolerance. Follow proper seeding guidelines and rates.
4. Implement an integrated pest management program to control insects, diseases and weeds.
5. Time the last cutting so there is at least four to six weeks before a killing frost. If the last cut is taken within this time, then root reserves will be low going into the winter.
6. If cutting in the 'critical period, leave a four to six inch stubble to speed regrowth and catch snow.
7. If you have a healthy stand, consider taking the first cut at the late bud stage to early bloom stage of development. This will allow a second cut to be taken in early August.
8. If feed is needed, consider harvesting after a killing frost. Higher stubble heights should be left in order to catch snow and enhance survival. Some producers leave uncut strips every eight to 10 metres to catch snow.



9. Consider grazing rather than cutting second growth fields after a killing frost. Grazing is more apt to leave taller stubble than cutting, and this will catch more snow. Once plants start to dry down in the fall the risk of bloat is reduced. However, grazing after a killing frost does not eliminate bloat. Watch cattle accordingly.

Assessing Stands for Winterkill

A few years ago, Agriculture and Agri-Food Canada recommended a simple method of assessing suspected winter injury in the spring. At several spots in the field dig individual alfalfa plants with the crown and about 15 centimetres (six inches) of intact taproot. The crown is the region where last year's stems and the taproot meet. Using a knife split plants starting at the crown and down the middle of the taproot. Check the colour of the root. If it is white and firm, the root is healthy. If the root is brownish yellow in colour, is soft and watery, or if the outside of the root peels off the centre like a banana peel, it has been killed by low temperatures.

Winter injury is different than winter crown rot which can also contribute to the death of alfalfa plants over the winter. This disease is caused by some of the same fungi that produce snow mould of grasses. Plants are damaged in late fall or early spring. Scattered infected plants may be found while more severe outbreaks of the disease are characterized by irregular patches of dead plants. A dark brown rotting of the crown occurs, while the root remains firm and apparently healthy until natural decay sets in. Only a portion of the crown may be affected and diseased plants may recover partially.

Will Nitrates be a Problem?

Generally, under normal soil fertility levels alfalfa does not accumulate nitrate so the risk of nitrate poisoning of cattle from grazing or feeding fall cut alfalfa is low. If for any reason you suspect nitrates may be a concern, have a representative sample tested.

Summary

The decision to cut alfalfa in the fall often becomes a question of economics. Factors such as the value of hay, the age of the stand, the cost to re-establish a stand in the case of winterkill and the potential second cut yield all need to be considered. If the decision is made to cut in the fall, then there are some things that can be done to reduce the risk of winterkill or injury.

Government of Saskatchewan
Ministry of Agriculture

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Sensitivity Analysis and Cow Profitability

The fall calf run will soon be starting. During the course of the run many producers will be trying to decide whether their cow herd is profitable. Many factors come into play in calculating profitability including calf prices, feed costs and pasture rent. How these factors play out often means the difference between a profitable year and one that needs an infusion of outside cash. During those deficit years a producer may want to run some numbers to determine if the cows stay or go to town on the next liner.

In order to calculate future profitability a producer has to try to guess where prices are going, both on expense side and the revenue side. Sensitivity analysis can help. Sensitivity analysis involves some educated guess work. One takes the worst case price, best case price and the most likely price to arrive at profitability.

I recently used sensitivity analysis to run some scenarios using Rancher's Return. I used three factors: hay price, calf price and summer pasture rent. This arrangment can result in 27 different scenarios, however I'll choose to highlight just three: the most pessimistic view, the most optimistic and the one in the middle.

In my analysis I used a provincial average sized cow herd of 82 cows weaning 90 percent with an even split between heifers and steers. Steers averaged 600 lbs and heifers 575 lbs. Steer prices were set at $1.60/lb for a high, $1.40/lb for a low and $1.50 for most likely. Heifer prices were discounted 15 cents from those numbers. I used a low hay price of $60/ton, a high of $80/ton with a most likely of $70/ton. Summer pasture rent was set at 67 cents/day for a low, $1/day for a high and 83 cents/day for most likely. In the scenario I pulled the unpaid labour component. This resulted in the unpaid labour number being added to the return to equity and management column giving us a profitability picture.

The ***optimistic*** scenario using the lowest input prices coupled with the best calf price resulted in a return to equity and management value of $32,060 or $391/cow. The ***pessimistic*** view resulted in profitability being cut more than 50% coming in at $15,204 or $185/cow. The ***middle of the road*** comes in at $23,691 or $289/cow.

Keep in mind that these numbers are just examples; they are used for illustrative purposes. A producer should run their own numbers to come up with their own herd profitability figures.

Rancher's Return:

http://www.agric.gov.ab.ca/app21/ldcalc?calcId=109

If you have any questions regarding farm management, give us a call at the Ag-Info Centre.

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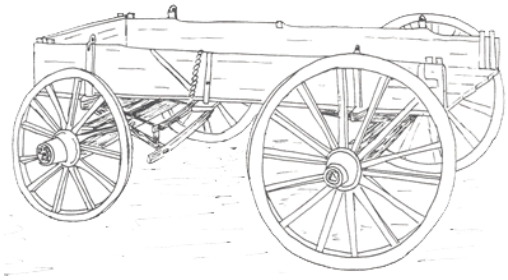

A farm boy accidentally overturned his wagonload of corn. The farmer who lived nearby heard the noise and yelled over to the boy, "Hey Willis, forget your troubles. Come in and visit with us. I'll help you get the wagon up later."
"That's mighty nice of you," Willis answered, "But I don't think Pa would like me to."
"Aw come on boy," the farmer insisted.
"Well okay," the boy finally agreed, and added, "But Pa won't like it."
After a hearty dinner, Willis thanked his host. "I feel a lot better now, but I know Pa is going to be real upset."
"Don't be foolish!" the neighbor said with a smile. "By the way, where is he?"
"Under the wagon."

Over the Fenceline

Working the Records: Moving Beyond Production

Farming is a text book example of perfect competition. As an industry it is made up of many buyers and many sellers. In this world of perfect competition it is difficult for an individual producer to earn more than a minimal return or profit. As a result of this type of competition, farmers are essentially price takers. Some extra profits can be generated by careful attention to marketing, however for any given individual farm, prices will be relative. In other words, farm A may generate a 10% price premium to farm B due to marketing diligence and this relationship will likely stay constant over time without the influence of some major intervention. For all intents and purposes, farmers are price takers.

In this state of perfect competition which has a multiple seller component, individual production levels rarely affect price if ever. Collectively, production levels have a bearing on price but not at the individual producer level. It is human nature, therefore, for producers to attempt to maximize revenue by maximizing production. While this may maximize revenue, there is a certain little item called the production function that gets in the way of a producer optimizing profitability. The production function moves through 3 stages. In the first stage, total production increases at an in increasing rate with incremental additions of inputs. In the second stage, total production still increases although at decreasing rate and in the final stage, total production actually decreases with additional inputs. Profits are optimized in stage two. In a perfect world, profits are maximized where marginal cost equals marginal revenue. For example, let's say a 60 pound rate of N fertilizer produces a 70 bushel barley crop. If an additional 10 pounds of N worth 60 cents a pound results in 71 bushel barley crop worth $6 a bushel we can say that the marginal cost ($6) equals the marginal return ($6). If the next 10 pounds of N yields a 71.5 bushel crop it would not pay to go to this level of input because you would only return $3 for each $6 increase in inputs. Similarly, if barley was only worth $5 a bushel it would not even pay to make the initial increase (going from 60 to 70 pounds of N).

One quickly sees that in years of lower commodity prices, it may not pay to increase production and increased production can even lead to reduced profits or even none at all, depending on the total level of production.

While the production function is a relatively simplistic concept, it becomes complicated when applied to the farm level. To paraphrase Buckminister Fuller, we have to think globally (whole farm level) and act locally (per acre basis). Managing this complexity is extremely difficult without adequate records. Every individual farm is unique and relying on provincial or even regional averages does not give the level of detail needed to optimize the profits for each farm. The detailed records give managers the edge they need to optimize their farm's resources. It may be possible to develop individual production functions for each acre on the farm using test strips and spreadsheet modeling. However, the costs of doing it this way may outweigh the benefits when one considers the cost of human capital. It may be more advisable to use this approach on a quarter or field management area basis.

The tools that are available to managers to manage more precisely are available. These involve developing individual per acre or even per square foot records using such tools as GPS (Global Positioning Systems), yield monitors, variable rate applicators and perscription maps for inputs. Through powerful modelling and analysis software, a manager can quickly generate small unit production functions that will optimize profits on the farm down to the square foot. This information coupled with powerful decision support software will give farm man agers the tools needed to increase the profitability on the whole farm. It is only through this attention to detail that modern farm managers will be able to move beyond production to increase profits and survive into the next generation.

If you have any questions regarding farm management, give us a call at the Ag-Info Centre.

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UPCOMING EVENTS

Battle River Research is hosting Holistic Management practitioner:

Gabe Brown (www.brownsranch.us) in October

"Exceptional attention to soil health through the use of no-till farming, diverse cover crops, and intensive rotational cattle grazing have allowed Brown's Ranch, a North Dakota farm and ranch, to become increasingly profitable." *-Susan Tallman, NCAT Agronomist*

Keep watch for more upcoming information.

Agronomy Update is being held in Lethbridge in February of 2015

Annual Meeting (for 2014) is held at the end of February, 2015

A big THANK YOU to all of you who came out to our field events. I hope you found your time with us informative and fun! We always enjoy hosting our members.

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