Saskatchewan Hay & Pasture Report

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Inside This Issue:

Note from the Saskatchewan Forage Council

As the first week of September begins, forage producers throughout the Province are preparing for the fall season. As this season approaches, livestock and forage producers are hauling hay, considering forage supplies and beginning to think about pricing feeds and forages. With limited hay trading at this point in time it is difficult to determine new crop forage supply and prices. More information will become available in September as thoughts turn to forage quality and supplies in anticipation of the winter feeding season. Pasture topsoil conditions are adequate in most areas, although moisture shortages and surpluses are reported from areas around the Province after hot weather in August was followed by more heavy rainfall in some regions.

The September 2014 issue of the Hay and Pasture Report contains news of a forage industry chair position at the University of Manitoba, articles about legumes and the importance of healthy riparian areas, as well as an update to the trace minerals project that the Saskatchewan Forage Council and partners recently completed. You'll also find the most recent Saskatchewan Agriculture Crop Report and a summary of forage market information from Saskatchewan and surrounding jurisdictions in every issue of the Report.

As always, we welcome your feedback and encourage anyone interested in being placed on our email distribution list to contact the SFC at office@saskforage.ca. You may also want to visit our website www.saskforage.ca for regular news and information related to the forage industry.

Saskatchewan Agriculture Crop Report

(For the period ending August 25, 2014)

Two per cent of the 2014 provincial crop is combined, while 12 per cent is swathed or ready to straight-cut, according to Saskatchewan Agriculture's weekly Crop Report. The five-year average (2009-2013) for this time of year is six per cent combined and 14 per cent swathed or ready to straight-cut. Harvest has progressed the most in the southwest, where seven per cent of the crop has been combined. At this time, average crop yields are being reported in most areas.

Rainfall across the province this past week ranged from trace amounts to several inches, with some areas in the east-central region receiving up to 141 mm. Across the province, topsoil moisture on cropland is rated as 28 per cent surplus, 71 per cent adequate and one per cent short. Hay land and pasture topsoil moisture is rated as 22 per cent surplus, 75 per cent adequate and three per cent short.

Heavy rain, strong winds, flooding and hail caused the majority of reported crop damage this week. Grasshoppers, wheat midge and sclerotinia also caused some damage.

Farmers are hoping for improved weather to resume harvesting operations. View the full Crop Report here.

Trace Mineral Status of Saskatchewan Pastures

Saskatchewan Forage Council and partners

Trace minerals are those minerals essential for animal growth, maintenance and reproduction, but are required in small quantities in the diet relative to macro minerals. Generally, trace minerals are required at concentrations less than 100 ppm (parts per million) in an animal's diet. Copper (Cu), zinc (Zn), selenium (Se), manganese (Mn), and molybdenum (Mo) are examples of trace minerals.

Trace minerals are vital for:

- General animal health and growth
- Proper immune function
- Feed efficiency
- Reproduction and productivity

Even when clinical signs are not evident, animals deficient in trace minerals may be converting feed less efficiently, growing more slowly or displaying poor reproductive performance. For these reason, trace mineral deficiency can have a significant economic impact on livestock operations.

The Saskatchewan Forage Council and partners recently completed a project which sampled tame and native forage species in Saskatchewan pastures during 2012 and 013 for trace mineral content. The objective of this project was to determine the effect of location (Brown, Dark Brown, Black and Gray soil zones), season (spring vs fall) and forage species on trace mineral levels in various forages from Saskatchewan pastures. Water quality data was also analyzed to assess the overall nutrients available to cattle on pastures.

Season and forage species both had significant impacts on mineral content. General trends for trace mineral concentrations were also identified based on soil zone. Some important points to note are:

- Trace mineral levels varied significantly by season. For example, in the brown soil zone, molybdenum was adequate in 98% of forages sampled in spring but was only adequate in 81% of the samples taken in fall.
- Zinc and copper were deficient in most of the forages tested across all of soil zones, seasons and species.
- Iron was sufficient in almost all forages sampled.

- Selenium levels were adequate in over 90% of the forages sampled in the brown, dark brown and grey soil zones and adequate in over 80% of the forages sampled in the black soil zone.
- Cu:Mo ratio is of concern in the fall for all forages sampled and is most often deficient in the Gray soil zone.
- Many of the micro and macro minerals may be deficient in your forages for grazing beef cattle and as a result, supplementation will be required.

Based on these results, varying your mineral supplementation program from spring to fall and matching the program to stage of production or gestation of your herd is recommended.

Based on these results, varying your mineral supplementation program from spring to fall and matching the program to stage of production or gestation of your herd is recommended. Using the data from this study can help you understand trace mineral trends in your area, however it is highly recommended that you test both feed and water sources in your own pastures to confirm actual trace mineral content available for grazing livestock.

The full report is available on the SFC website. To view the full report, click here. In addition, four fact sheets (one for each of the soil zones in SK) were developed and are also available on the website. Print copies of all Trace Minerals Factsheets are available by contacting the SFC at 306.969.2666 or e-mail office@saskforage.ca.

Trace Minerals Black Soil Zone Factsheet click here.
Trace Minerals Gray Soil Zone Factsheet click here.
Trace Minerals Dark Brown Soil Zone Factsheet click here.
Trace Minerals Brown Soil Zone Factsheet click here.

Funding for this project was provided by the Saskatchewan Ministry of Agriculture and the Canada-Saskatchewan Growing Forward bi-lateral agreement.

Project partners: Agriculture and Agri-Food Canada, Western Beef Development Centre, University of Saskatchewan, Saskatchewan Ministry of Agriculture.

Is it Important to Inoculate Legumes?

Laura Hoimyr-Saskatchewan Forage Council

Including legumes in forage mixtures is a common practice in Saskatchewan to improve both quality and yield of hay fields and pastures. As crop input costs continue to climb, the natural nitrogen fixing ability of legumes can provide an economical alternative to costly nitrogen fertilizer.

Legumes are able to fix nitrogen through a symbiotic relationship with rhizobia bacteria. The rhizobia invade the legume roots as they begin to grow and live within the roots; forming the nodules we recognize as an indication that nitrogen fixation is occurring. Rhizobia bacteria use energy provided by the plants in the form of glucose to convert atmospheric nitrogen (N_2) to ammonia or nitrate that plants are able to use. This process reduces the need to add supplemental nitrogen fertilizer and depending on which legume is grown and how the crop is utilized, a significant amount of nitrogen may be returned to the soil in a plant-available form. However, it is important to keep in mind that if legumes are not fixing nitrogen they will use the available nitrogen in the soil as any other plant does, depleting soil nitrogen stores with time. The addition or presence of high levels of N in the soil will inhibit nitrogen fixation as the legume will preferentially use soil available nitrogen before fixing atmospheric nitrogen.

Although rhizobia exist in many soils, each legume requires specific rhizobium bacteria in order to effectively fix nitrogen. The process of introducing these bacteria into the soil is known as inoculation. Inoculant is available in powdered, liquid or granular form or seed may be sold pre-inoculated. It is important to remember that these products are live bacterial cultures and package directions and timelines must be followed to ensure the rhizobia remain viable. In Canada, inoculant specifically intended for alfalfa and sweet clover (both of which use Rhizobium meliloti) are commercially available. However there are currently no companies in Canada selling inoculant for the minor use legumes including sainfoin, cicer milkvetch and red clover. The next issue of the Hay and Pasture Report will include an article following up on this important issue for Saskatchewan forage growers.

To check if your legumes are fixing nitrogen, carefully dig up plants from different locations in your field, including the soil surrounding the roots and gently wash off the dirt to reveal the roots. In a newly sown field, wait 6 weeks or more before examining the roots. Slice open several nodules and observe the colour on the inside. Nodules that are effectively fixing nitrogen are pink to red in colour on the inside, while nodules that are grey/white/green colour on the inside indicates that effective nitrogen fixation is not occurring. If you discover that your legumes are not fixing nitrogen, your crop may require additional nitrogen fertilizer or inoculant. Reseeding a perennial forage stand with new inoculated seed is the most effective method of solving this problem but represents a significant loss in production time and cost. It may be possible to add inoculant to the existing crop by drilling in granular inoculant or by spraying a water-inoculum suspension, but this often does not work and it is highly recommended that you consult an agrologist prior to using this method. Essentially, taking care to purchase the correct inoculant and to carefully follow the inoculant storage and usage directions will reduce the need for costly interventions.

For further reading about legumes and the role they play in soil nitrogen levels and crop yields, consult the Saskatchewan Forage Council's factsheet *Growing Forage Legumes in Rotation with Annual Crops* and the Saskatchewan Ministry of Agriculture article *Soil Improvements with Legumes*.

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Creating a forage industry chair to maintain research expertise

Canadian Cattlemen's Association-Action News, August 18, 2014

Cow-calf producers in Western Canada have widely adopted extended fall and/winter grazing practices using both annual and perennial forages. However, competition with high value annual crops has resulted in higher land prices and decreased land base for forage production in many beef producing areas. Therefore, having expertise in integration of land, plant and animal management is critical to increasing the productivity of both the forage land base and cow herd.

Work funded by the National Check-off and Canada's Beef Science Cluster is supporting the establishment of a permanent Western Canada Forage Industry Chair at the University of Manitoba. The project will also provide leadership and technology transfer for several projects focused on the evaluation and utilization of novel annual and perennial forages for late season and overwinter grazing.

To learn more, see the BCRC fact sheet:
www.beefresearch.ca/factsheet.cfm/creating-a-forage-industry-chair-to-maintain-research-expertise-153

Maintaining Healthy Riparian Areas Is Important to All of Us

Allan Foster, PAg Regional Forage Specialist, Tisdale
Regional Services Branch, Saskatchewan Ministry of Agriculture

Riparian areas are the transitional zones between the water of creeks, streams or wetlands and the dry uplands. All riparian areas have vegetation and soils that are strongly influenced by water. Although these areas only take up a small portion of the entire landscape of a watershed, they perform many valuable functions. Riparian areas act to filter run-off, reduce excessive erosion, recharge ground water and provide valuable habitat for wildlife and forage for livestock.

For streams or creeks, a narrow meandering channel with a broad floodplain and overhanging vegetation on the banks, typically indicate a healthy riparian area, particularly if the vegetation includes deep-rooted plants such as willow.

By binding the soil, deep rooted vegetation reduces erosion and stabilizes stream banks. Although woody species are particularly important, grasses, sedges and rushes also contribute to the root mat.

Healthy above-ground vegetation catch sediments and reduce the velocity of flood water and surface run-off. Fast moving water increases erosion. For example, a simple doubling of the speed of the stream's flow will increase the erosive power of the stream by four times and the amount of sediment it can hold by 32 times.

Therefore, one of the most important functions of healthy riparian areas is to slow the flow of water. When this happens, downstream flooding and flood peaks are reduced. Water infiltration into the soil is increased and ground water is recharged. This ground water provides more seepage back to the stream, thus stabilizing flow. Creeks and streams will flow for a longer period and seasonal flows will be less variable.

In this way a healthy riparian area acts like a sponge, holding water and then releasing it back into the creek or stream later in the season.

Healthy riparian areas are important to everyone. We can all thank the many livestock and grain producers in this region that contribute to the health of our local creeks and streams every day.

Your local Agri-Environmental Group Plan (AEGP) has more information on four best management practices (BMP's) for riparian areas that qualifying producers can access to help offset the cost of maintaining and protecting riparian areas on their farms.

More information on BMP's for maintaining healthy riparian areas is also available by contacting your local Saskatchewan Agriculture Regional office or the Agriculture Knowledge Centre at 1-866-457-2377

Fall Harvest Management of Alfalfa

Saskatchewan Ministry of Agriculture

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. 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.

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 60 to 90 cm (two to three 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°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.

What other factors 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 -20o C. A number of factors including cutting management can affect winter survival, including:

- 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 winter hardy variety was more important than the previous fall harvest date in determining winter survival.
- Warm, moist fall weather that is unfavourable for hardening of the plants.
- Alternate freezing and thawing of the ground during the winter or early fall.
- Surface icing during the winter or early spring.
- Winters that are longer than the normal dormancy period.
- Long periods of drought in the summer and fall, causing plants to dry out before or soon after winter starts.
- 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.

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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.

What can be done to reduce the risk of winter-kill?

- Select the proper field. When possible, seed alfalfa on land with good drainage, low salt levels and a neutral pH.
- 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.
- Seed hardy varieties. Plant only varieties that have good cold tolerance. Follow proper seeding guidelines and rates.
- Implement an integrated pest management program to control insects, diseases and weeds.
- 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.
- If cutting in the 'critical period, leave a four to six inch stubble to speed regrowth and catch snow.

- 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.
- 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.
- 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 centimeters (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:

For more information contact your local Saskatchewan Ministry of Agriculture Regional Office or visit the website at www.agriculture.gov.sk.ca.

Saskatchewan Hay Market Report

Saskatchewan Ministry of Agriculture
www.agriculture.gov.sk.ca/FeedForageListing

For the week ending August 29, 2014 there are no listings for baled forage and limited offerings of standing forages and pasture in the feed, forage and custom service listing. There is one request for standing hay to bale but no price associated with this listing. Other internet sources (Kijiji and the Western Producer classifieds) show limited hay trading at this time, with asking prices averaging from $75-95/metric tonne for new crop alfalfa-brome hay.

USDA Market News Service Hay Report

For the week ending August 29, 2014
The United States Department of Agriculture (USDA) collects a wide variety of information from hay markets across the country. Presented below is information from those jurisdictions closest to Saskatchewan. For complete USDA hay market listings, please visit the USDA Market News webpage.

Weekly Montana Hay Report

Compared to last week: Alfalfa hay remains steady. Very good demand remains for high testing dairy quality alfalfa from out of state buyers, demand much lighter from in-state buyers of lower quality alfalfa suitable for feeding beef cows and feedlot cattle. Very large rains across MT this past week with more in the forecast has completely halted haying, many growers had hay rained on making high quality hay that much harder to find. All prices are dollars per ton and FOB unless otherwise noted.

Wyoming, Western Nebraska, and Western South Dakota Hay Report

Compared to last week: All classes traded steady on very light demand. All prices dollars per ton FOB stack in large square bales and rounds, unless otherwise noted. Most horse hay sold in small squares. Prices are from the most recently reported sales.

Prices are for the week ending August 29, 2014

	Eastern Wyoming	Central & Western Wyoming	Western Nebraska	Western South Dakota	Montana
Alfalfa					
Supreme					$215
Premium	$180 $130**	-	$175	$85*	$200 $190*
Good	$80**	$150	$160	$74 $70* $127**	$170-180 $170-200**
Fair	$130-140	-	$115	$52*	$155
Utility	-	$100	$100		-
Alfalfa-Grass	$155† $83**	$250 $175-285**	-	$95 $67**	-
Grass	$150**	$125	$100*	$70	$135 $64-73* in NE
Wheat Hay	$105†	-	-	-	-
Rye Hay	$70	-	-	-	-

All prices in U.S. dollars per ton FOB stack in large square bales unless otherwise noted.
Most horse hay sold in small squares.
**large rounds **small squares ***new crop †delivered*

Hay Quality Designations - Physical Descriptions:

Supreme: Very early maturity, pre bloom, soft fine stemmed, extra leafy - factors indicative of very high nutritive content. Hay is excellent colour and free of damage. Relative Feed Value (RFV): >185

Premium: Early maturity, i.e., pre-bloom in legumes and pre head in grass hays; extra leafy and fine stemmed - factors indicative of a high nutritive content. Hay is green and free of damage. RFV: 170-185

Good: Early to average maturity, i.e., early to mid-bloom in legumes and early head in grass hays; leafy, fine to medium stemmed, free of damage other than slight discoloration. RFV: 150-170

Fair: Late maturity, i.e., mid to late-bloom in legumes and headed in grass hays; moderate or below leaf content, and generally coarse stemmed. Hay may show light damage. RFV: 130-150

Utility: Hay in very late maturity, such as mature seed pods in legumes or mature head in grass hays, coarse stemmed. This category could include hay discounted due to excessive damage and heavy weed content or mould. RFV: <130

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