

The Saskatchewan Hay Report

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Editors' Note

In this edition of the *Saskatchewan Hay Report* we take a look at a wide range of topics including the value of crops residues as a feed source and manure application on forage stands. As always, we provide an overview of market conditions and trends from across the Prairies and northern United States.

We are busily working on the final edition for this growing season, scheduled for mid-October, which will provide a summary of the year's production and markets. We encourage you to provide us with any comments, story ideas or statistics from your region – we are always open to suggestions and input.



Saskatchewan Agriculture and Food Crop Report #23 (For the week ending September 8, 2007)

South Eastern Saskatchewan: Topsoil moisture conditions became drier last week. Conditions are also drier on hay and pasture land with 23% of the land rated as having adequate topsoil moisture, compared to last week. Pastures are in poor condition in several areas from prolonged lack of precipitation. Cattle were being moved off summer pastures in the Kisbey area.

South Western Saskatchewan: Conditions improved slightly on hay and pasture land with 70% of that land rated as having very short topsoil moisture, compared with 76% last week. That being noted, pastures remain in very poor shape and some livestock producers are feeding their animals. In the Mankota area, farmers are hauling water for their livestock. Cattle are being moved to fall pastures in some areas.

East Central Saskatchewan: Conditions improved slightly on hay and pasture land with 74% of the land rated as having adequate topsoil moisture, compared to 66% last week.

West Central Saskatchewan: Seventy-seven per cent of the hay and pasture land was rated as having adequate topsoil moisture, compared to 59% the previous week. Pastures are looking very dry in the Rosetown area.

North Eastern Saskatchewan: Conditions are similar to last week on hay and pasture land with just over 90% of the land rated as having adequate topsoil moisture conditions.

North Western Saskatchewan: Conditions improved on hay and pasture land with 92% of the land rated as having adequate top soil moisture, compared to 82% last week.

Crop Residue as a Feed Source

Lorne Klein, PAg

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Saskatchewan Food and Agriculture

Forages for livestock can be grouped into one of four categories. The categories are:

- annual crops (oats, barley, millets, corn)
- annual crop residues (chaff, straw)
- native rangeland
- tame or seeded perennials (grasses, legumes)

This article will discuss annual crop residues for fall and winter grazing and methods of economically providing them to livestock.

On a provincial basis, crop residues are produced on a massive scale. It is somewhat surprising they are not used more extensively, because potentially they can be the cheapest source of forage for livestock. Once a producer has made the decision to grow annual crops for combining, the residue is produced at no extra cost.

The challenge then is to provide crop residues at low cost to the livestock. This is a critical factor because most crop residues have relatively low feed value. If money is spent on machinery and fuel after the combine has left the field, there may be no economic advantage to feeding crop residue.

In many cases, in order to be economical, crop residues need to be bunched in some form behind the combine and grazed in the field. In order for field grazing to be viable, a few things have to come together. These are:

1. You need enough crop residue acres to justify the effort and bunching cost.
2. Ideally, your annual cropland parcels would be in a block and/or close to home. This will make perimeter fencing less costly and access for the livestock more convenient.
3. Your crop rotation needs to include crops that produce palatable residue.

4. If possible the perimeter fence and especially the internal fences to limit access to the feed should be single strand electric wire.
5. Snow can be used as a water source. If snow is not available, you need a backup water source.
6. If natural shelter is unavailable, you will probably need portable windbreaks.

There are two relatively low cost combine attachments that collect and leave crop residue bunches in the field. They are both ideas that have been re-invented from the past.

One attachment is the Whole Buncher which is commercially built by the inventor. Essentially, this tool is a giant pitchfork that collects both the chaff and straw, and deposits the material in piles approximately 3 feet high and 5 feet long. The unit uses a counterbalance weight and trips automatically. It is a little easier to mount on combines where the chaff and straw exit together.

Another attachment is a box that collects the chaff only. This can only be mounted on combines where the chaff and straw exit the combine separately. The unit has a solid bottom and deposits the chaff in piles approximately 6-8 inches high, and 3 feet long. It also uses a counterbalance weight and trips automatically.

Depending on your crop mix, the size of your land base, and your livestock numbers, you will need to decide whether you want to collect chaff only or the chaff and straw together.

The perfect combine would have a feature where at the flip of a switch, you could 1) bunch the chaff only, 2) bunch the chaff and straw together, or 3) spread both the chaff and straw.

For more information on crop residue collection and field grazing, contact Lorne Klein - Saskatchewan Agriculture and Food at (306) 848-2382.

Hay, Weeds and Economics

Andre Bonneau, BSA, PAg

Forge Conversion Specialist

Agriculture Knowledge Centre - Saskatchewan Agriculture and Food

At the time I write this, haying season in Saskatchewan is wrapping up. For the most part, the hay looks very nice although it seems a little late this year.

A few questions that seem to come up this time of year:

1. What's my hay worth?

Your hay is worth what you put into it. Add up the establishment costs (divided by the expected life of the stand) to the taxes and return on land investment to establish the standing value of the hay. Add between \$25 and \$30 per ton (\$27.50 to \$33.00 / tonne) for cutting and baling to determine the cost of putting up hay.

Notice that if the yield increases, the establishment costs per ton decreases and the haying costs remain close to the same.

The next question is whether you can recover the value in the market. Once the hay is put up, the options are to sell it, feed it or store it until the hay prices change.

2. When do I cut my greenfeed? Swath grazing?

Cereals cut for greenfeed or swathgrazing should be treated the same way. Barley should be cut at the early dough stage, oats should be cut at the mid to late milk stage while rye and triticale should be cut just after flowering. Keep in mind that cereals progress quickly through the kernel fill stages, especially during hot and dry weather. Start early enough to ensure a good portion of the crop is at the right stage or earlier.

3. How do I sell hay on shares?

One way to calculate shares is to establish what the hay is worth on the market and find the value of the hay relative to the process of putting up the hay. For example, if hay is worth \$50/ton and it costs \$30/ton to put it up, the agreement should be a 3:2 crop share with the higher proportion going to the operator.

Another way to establish a share agreement is to establish the expense of each part of the operation from establishment to harvest, and how each operation compares to the entire cost.

4. Why are my bales still out in the field?

Why do bales stay out in the field so long? This question never comes up but it's something to think about.

There are many reasons to get the hay off the fields as soon as possible. First of all, leaving a bale on the field can kill the grass and alfalfa under that bale. Each bale can kill the forage in up to 18 square feet of hayland. Add this up over a few years and it doesn't take long to see the problem. As well, when the forage is lost or suppressed, weeds tend to take its place. Another reason, wheel traffic tends to damage forage regrowth, especially alfalfa. The more advanced the alfalfa is when it's trampled, the higher the yield loss in the future.

As I mentioned earlier in the article, you've already spent \$25 to \$30 a ton putting up the hay, why let it sit there to kill the forage? It will have to come off eventually anyway.

Manure Application on Forages

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College of Agriculture and Bioresources - University of Saskatchewan

At a recent field day held in Lanigan, SK, research conducted at the Western Beef Development Centre and Agriculture Canada research station in Brandon, MB on declining Canadian forage production linked the decline in forage production to a parallel rise in fertilizer costs. Forage producers have been reluctant to apply high cost commercial fertilizer due to the risk of not obtaining a higher forage yield under possible adverse moisture conditions. A lower cost substitute for commercial fertilizer is animal manure which can be an excellent source of

nutrients contained in the manure, can lower forage crop fertilizer costs and increase forage production. Manure is a valuable source of organic matter and can improve soil quality factors such as nutrient cycling and the moisture holding capacity of the soil. Livestock manure contains most of the nutrients that plants require including nitrogen (N), phosphorus (P) and potassium (K).

When applying animal manure on forages, it is necessary to understand the forms of manure and how the nutrients behave. Nutrient content and plant availability varies from solid manure to liquid manure and can vary depending on the source of the manure. Solid cattle manure, for example, contains more organic matter due to the solid fecal content of the manure, bedding materials and feeds utilized in cattle operations. Nutrients such as N are in a more organic form due to the higher carbon to nitrogen (C:N) ratio and must be mineralized (converted to a inorganic form) to be made available for plant uptake. Only about 10-20 % of the N is in the form of ammonium, which results in a lower availability of N in the year of application. Thus the N is made available over a longer period of time, so there is a carryover effect for available N after application of solid cattle manure.



Photo credit: Frances Westlund

Hog manure, on the other hand is mostly liquid, containing very little solid material so the nutrients contained within this type of manure are in a more inorganic form and can be immediately available for plant uptake in the year of application. The actual nutrient content of animal manure depends on the type of livestock operation (solid, semi-solid or liquid), type of bedding material used, moisture content, feed and feed supplements and age of animals. Producers should obtain representative samples of the manure in advance of application in order to have a soil testing laboratory determine the nutrient content and calculate appropriate agronomically and environmentally correct application rates.

Producers need to balance the nutrients contained in the manure with the forage requirements, the composition of the manure, and the plant availability of the manure. A manure application rate that meets the needs of crops' N requirements, for example, could lead to over application of other nutrients such as P or K. Over application of one or several nutrients could lead to nutrient toxicity for the forage crop and could lead to a risk of environmental contamination due to runoff to surface water bodies (in the case of P) or contamination of groundwater supplies from leachable nutrients such as nitrate. For the forage producer, the key is to apply the appropriate amount of manure to supply the required needs of the crop. The producer can start with a soil test to determine the available soil nutrients, test the manure source to determine what nutrients are present and what amounts are present, then supply the appropriate amount of manure needed to cover the total amount of forage land.

Manure applied on perennial forage land can offer the forage producer several options. Unlike cultivated land, where manure is usually applied at the beginning or end of the growing season, forage producers can apply manure following a hay harvest or on pasture after livestock have

been moved to a new field. Spring application can be the most beneficial as moisture conditions can be more advantageous and crop uptake of nutrients is higher. Long-term manure studies conducted by researchers at the Department of Soil Science at The University of Saskatchewan and Prairie Agricultural Machinery Institute (PAMI) have found that hog manure applied using a coulter injection system in grasslands provides a low cost application method and provided an efficient option for soil retention and plant utilization of nutrients such as N.

The nutrient carryover, in the case of solid manure, will increase forage production in subsequent years. Perennial forages can use more nutrients than annual crops as forages grow for a longer period of the crop year. Thus application should be based on potential yield and calculated to meet the forage nutrient requirements. Forage crops that have extensive and deep root systems are quite efficient at seeking out and taking up nutrients from the soil profile. This can prevent nutrients such as N from leaching downward in the soil profile and possibly contaminating groundwater supplies.

Forage producers should avoid broadcasting manure on actively grazed pastures, which may result in livestock refusing to graze fouled forage. Excessively high rates of application should be avoided due to toxicity and potential accumulation of nitrates in the forage crop as well as environmental contamination concerns. Broadcasting solid manures should be made as uniformly and consistently as possible and avoid clumping of manure, which can smother plants. Broadcasting of solid manure can increase the potential for volatilization, thus application should be made in cool, low wind conditions. Forage stands kept in good condition will have a greater ability to respond to manure application than poorly established or weedy stands. The productivity of the soil is also a major determining factor in forage yields. Forages established on heavier textured soils with good moisture holding capacity will respond more favorably to manure application than stands on coarse textured soils.

It is strongly recommended that forage cut for hay or grazed that has received any type of animal manure as a source of nutrients should be feed tested by a laboratory to determine nitrate levels and for ration formulation.

The economic benefits to utilizing manure as a fertilizer source include lowering fertilizer costs, improving soil properties while enabling more intensive use of forage land by grazing it longer. The nutrient carryover, in the case of solid manure, will increase forage production in subsequent years, which in turn will improve profitability.

For more information on calculating manure application rates and utilizing manure as a nutrient source, please refer to the references listed.

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Saskatchewan Hay Market Report

Saskatchewan Agriculture and Food

www.agr.gov.sk.ca/feedforage

Baled Forage Prices (dollars per ton) to September 11, 2007

	Listings	Listings Priced	Tons Listed	Tons Priced	Lowest Price/ton	Highest Price/ton	Weighted Average Price/ton
Alfalfa	19	12	9,257	9,112	\$25	\$65	\$41
Brome/Alfalfa	17	12	2,950	1,765	\$40	\$100	\$52
Clover	2	2	819	819	\$37	\$40	\$38
Straw	5	3	324	264	\$20	\$40	\$28

Vold Jones & Vold Auction Co. Ltd. - Market Report (September 12, 2007)

Ponoka, Alberta

Telephone: (403) 783-5561

Hay:

Small Square Bales 1.50 – 5.50

Round Bales 35.00

Straw:

Square Bales None

Round Bales None

Green feed:

Square Bales 2.10 – 3.25

USDA Market News Service Hay Reports

September 14, 2007

Dennis Widga and Justin Lumpkin

www.ams.usda.gov/mnreports/to_gr310.txt

Wyoming, Western Nebraska, and Western South Dakota Weekly Hay Summary

Trade slow to moderate this week. Demand good. Second cutting completed, with most third cutting completed in eastern Wyoming and western Nebraska. Reports are that hay supplies may be short this fall and winter.

Weekly Montana Hay Report

Compared to last week sales remain steady. Demand moderate to good. Some producers are making their third cutting of alfalfa. Conditions remain dry this week with a few nights of frost in some areas.

All prices in U.S. dollars per ton FOB stack in medium to large square bales and rounds unless other wise noted.

	Eastern Wyoming	Central & Western Wyoming	Western South Dakota	Montana
Alfalfa				
Supreme	140.00	120.00-130.00		120.00-130.00
Premium	120.00-130.00	110.00-125.00	90.00-110.00	
Good to Premium				90.00
Good	100.00-124.00	90.00	70.00-90.00	
Fair -Good	95.00-110.00	85.00-110.00		65.00-70.00
Mixed Grass		110.00-120.00	80.00	80.00-85.00
Timothy- Premium	210.00			140.00-150.00
Alfalfa/Grass	165.00	100.00-110.00	80.00-100.00	

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 mold. RFV: <130

Source: USDA NE Dept of Ag Market News, Kearney, NE (308) 237-7579
Keith L Williams Market Reporter www.ams.usda.gov/mnreports/sc_gr310.txt

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