

# The Saskatchewan Hay Report

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## **Editors' Note**

It's hard to believe that we are already at the end of July and the haying season is well underway. It's been a bit of a challenge this season as excellent hay crops are the result of good moisture conditions, however this has meant a few struggles to get the crop up dry. It is our hope that this edition provides some useful management tips as well as market trends and information. As always, feel free to pass this publication onto others who may be interested. Comments and suggestions are always welcome

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## **Saskatchewan Agriculture and Food Crop Report #17 (For the week ending July 24, 2005)**

Warm, dry weather this past week has advanced crop development and haying operations across the province, according to Saskatchewan Agriculture and Food's weekly crop report. Topsoil moisture conditions on crop, hay, and pastureland continue to be generally adequate across the province, although the areas of short and very short moisture have increased from last week. Many areas are looking for a final rain to fill the crops.

Haying operations made good progress during the past week, with 54 per cent of the first-cut crop baled or put into silage. This percentage is ahead of last year's progress.

Pasture conditions have declined somewhat since the end of June, with 82 percent of reporters rating pastures as good to excellent, compared with 98 per cent giving that rating in June. Livestock water supplies were similar to the end of June, with 100 per cent reporting adequate supplies.

## **Farmers and West Nile Virus**

*Philip Curry*

*Saskatchewan Health*

As we enter into the high-risk period for West Nile Virus (WNV) – late July and August - Saskatchewan's farmers are encouraged to take precautions against mosquitoes in order to avoid West Nile Virus this summer. There are several practical things that can be done around the home and when working in the field to reduce the risk.

- 1. Tidy up the yard** - Get rid of all the things or places where water can collect. Old abandoned tires, puddles by the livestock troughs, plugged eavestroughs, birdbaths, pool covers and rain barrels are excellent breeding grounds for mosquitoes. Old tires collect just enough rainwater to be the perfect larval development sites. This water sits, the tires get hot sitting in the sun, and the water becomes skanky – or stagnant and foul. The grass grows up around these old tires – and suddenly there is the perfect microclimate for mosquito breeding. Large tractor tires are the worst because they hold water for longer than other kinds of smaller sized tires.
- 2. Mow the grass** - Mosquitoes love long grass. During the heat of the day, mosquitoes sit in the grass at ground level. This allows them to avoid the winds and the heat, which will dry them out. When the relative humidity goes up and the winds go down in the evening, then most mosquitoes become active – and that's when they'll go after the birds and anything else in the vicinity.
- 3. Be careful when haying** - Mosquitoes will come out in daytime if one disturbs them by walking through the grass. That's why farmers who are haying have to be careful. They disturb the grass and the mosquitoes bite. And when haying, farmers often use an open tractor – so it's essential to use a repellent and cover up. Repellents with DEET are the most effective. Use the repellent on the back of the neck and the backs of the hands, and cover up by wearing long-sleeved shirts, long pants and a hat. Wear cotton and light colors as these are cooler and are less attractive to mosquitoes.
- 4. Remove sources of standing water** – Permanent wetlands are occasionally blamed for creating mosquito habitat. A lot of times it's not the permanent wetlands that cause the problem and, certainly, the wrong thing to do is to drain the marsh. Don't drain the wetlands or spray the marshes with pesticides. Mosquitoes that develop in the wetlands have lots of natural predators such as frogs, birds and dragonflies. Ducklings alone, eat their weight in mosquito larvae. Mosquitoes that affect farms and communities are more likely coming from temporary water sources, including seepage from septic tanks, cattle hoof-prints filled with water or from little, shallow nondescript puddles, such as might be found around cattle troughs, watering sites or in the farm yard after a rain. Mosquitoes like polluted water – especially if it's got manure and urine in it. If water is the color of tea that means it is high in organic matter – nitrates and pollution. And that's where many of the mosquitoes will develop.

West Nile Virus is here to stay and we need to learn to live with it – rather than let it spoil the summer months. It's our responsibility to protect ourselves from West Nile Virus and that can be done quite easily – it's just a matter of common sense.”

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## **What are the symptoms of West Nile virus infection?**

*Public Health Agency of Canada*

[http://www.phac-aspc.gc.ca/wn-no/symptom\\_e.html](http://www.phac-aspc.gc.ca/wn-no/symptom_e.html)

Many people infected with West Nile virus have no symptoms and do not get sick or have only mild symptoms. When infection does cause illness, symptoms will usually appear within two to 15 days. The extent and severity of symptoms vary widely from person to person.

In mild cases, there may be flu-like symptoms, including fever, headache and body aches. Some people may also develop a mild rash, or swollen lymph glands.

Health effects that are more serious include meningitis, encephalitis and acute flaccid paralysis. Meningitis is inflammation of the lining of the brain or spinal cord. Encephalitis is inflammation of the brain itself. Acute flaccid paralysis is a polio-like syndrome that can result in the loss of function of one or more limbs. These conditions can be fatal. For people with more severe illness, symptoms could include the rapid onset of severe headache, high fever, stiff neck, nausea, difficulty swallowing, vomiting, drowsiness, confusion, loss of consciousness, lack of coordination, muscle weakness and paralysis. Other symptoms that have been identified include movement disorders, parkinsonism, poliomyelitis-like syndrome and muscle degeneration. Anyone who has a sudden onset of these symptoms should seek immediate medical attention.

## **Who is at risk for serious health effects from West Nile virus?**

While persons of any age or health status can be at risk of developing serious health effects from West Nile virus, the overall risk of serious health effects increases with age. People with weaker immune systems are also considered to be at greater risk for serious health effects.

People at higher risk for serious health effects from West Nile virus include:

- people with chronic diseases, such as cancer, diabetes, alcoholism, or heart disease;
- people that require medical treatment that may weaken the immune system, i.e. chemotherapy.

Because West Nile virus can cause severe complications for people of any age and any health status, it is extremely important to reduce the risk of getting bitten by mosquitoes. Anyone exposed to mosquitoes in an area where West Nile virus has been detected is at some degree of risk for infection.

## **How do doctors diagnose West Nile virus infection in their patients?**

The first thing doctors look for are symptoms of West Nile virus infection. The type of symptoms and their severity can vary widely from case to case. If a doctor suspects that a patient has West Nile virus, a blood test will be conducted to confirm the diagnosis.

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## Reducing Drying Time - An Important Management Factor in Efficient Hay Production

*Michel Tremblay*

*Forage and Grass Seed Specialist*

*Saskatchewan Agriculture and Food*

Until recently, rainfall and high humidity has made drying the 2005 hay crop a slow process. From standing crop to the cow's stomach, the goal of conscientious hay growers is to minimize dry matter losses as the crop is cut, cured, baled, transported and finally fed. One of the points at which large dry matter losses can occur is when the crop is cut and field cured to a moisture content that will allow for storage with minimal risk of spoilage. Curing hay in the field exposes it to the risk of dry matter losses due to post-cut plant respiration, microbial degradation, and bleaching and leaching due to sun and rain. Extended drying times increase losses due to respiration within the plant (greatest immediately after cutting, when moisture content is high), microbial activity, and oxidation of vitamins and minerals. When drying a hay crop, the primary goal is to reduce the amount of time required to field cure hay to the desired moisture content to as little as possible. Some factors to consider when reducing drying times include:

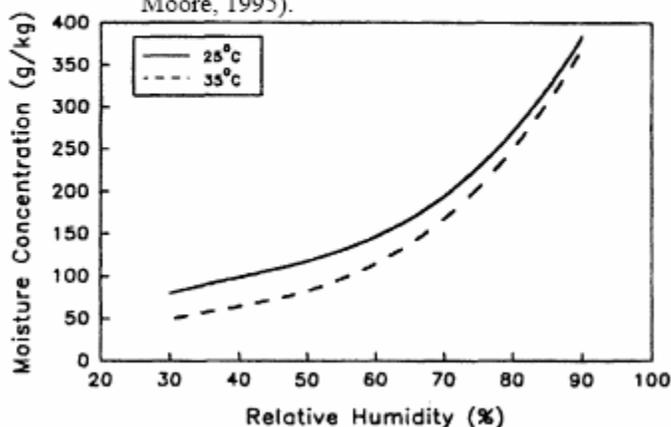
### Temperature

Higher air temperatures will result in faster drying, but relative humidity will have a significant impact on drying rates at a given temperature.

### Relative Humidity

Drying rate is inversely proportional to relative humidity. Drying rates and equilibrium moisture levels at a given temperature will vary according to RH % (figure 5).

Figure 5. Equilibrium moisture content of hay is proportional to the relative humidity in the air and the air temperature (Collins and Moore, 1995).



### Timing of Cutting

Crop development can have a significant impact on how quickly hay will dry down. As the hay crop matures, the moisture content of the crop declines. Pre-boot grass has a moisture content of 80-90%, grass at the boot stage has moisture content of 70-80%, flowering grass has a moisture

content of 50-70%, and grass in the seed set stage of development can have 50% moisture, or less. Cutting at a later stage of development, in order to reduce field curing time has to be balanced with the fact that forage quality declines as the grass plant matures.

In recent years, it has been proposed that timing of cutting during the day can impact on forage quality. It has been found that total nonstructural (TNC) carbohydrates peak in plants at approximately 6:00 pm, as the plant has had all day to fix sugars through photosynthesis. Levels are lowest in the morning, as respiration all night in the absence of photosynthesis reduces TNC concentrations. Cutting in the evening can result in an increase in TNC of 3%. However, cutting in the evening prolongs the initial drying period, as little drying occurs overnight. This increases dry matter losses due to respiration, which are high during the initial drying period. Higher nighttime temperatures increase the rate of respiratory dry matter losses. Therefore, it is of marginal benefit to cut late in the day to capture the maximum daily concentration of nonstructural carbohydrates.

### **Conditioning**

Successful conditioning occurs when 90% percent of the stem is cracked or exhibits a reduction in rigidity, but with less than 5% of the leaves exhibiting signs of bruising or blackening. Conditioning roller gap and roller pressure should be set to achieve these results. Conditioning action should be checked in each field, as crop kind, windrow size, stem diameter, maturity level of the crop and moisture content of the crop all will impact on conditioning action.

### **Packaging**

Bale type will dictate safe moisture levels for storage. Generally, small, medium and large square bales will safely store at 15% moisture, hard core round bale at 18%, and soft core round bales at 20% moisture.

### **Additives**

Hay preservatives can be added to hay at baling to reduce microbial activity, thereby reducing dry matter losses. Acid based additives reduce microbial activity by reducing the pH of the hay. Biological additives have cultures of organisms that inhibit harmful fungal growth. Cost has to be considered against the value of quality hay.

Consideration of the above factors will allow for the producer to minimize field drying time and maximize feed quality and yield, given the prevailing climatic conditions.

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## **Frequently Asked Questions - What are Hay Preservatives?**

*Christy Winquist, Beef-Forage Specialist*

*Agriculture Knowledge Centre, Saskatchewan Agriculture and Food*

Hay preservatives are products that allow hay to be baled at higher moisture levels thereby reducing drying times. There are three types of preservative: organic acids, bacterial inoculants and anhydrous ammonia.

**How do preservatives work?** Preservatives work to limit the growth of moulds in the forage through different mechanisms.

**Organic acids:** When applied, organic acids produce an acidic environment (low pH) that is not conducive for mould or bacterial growth. Generally, low pH does not affect hay intake. The two main types of acids that are used as preservatives are propionic and acetic acid. Propionic acid is more effective at controlling mould and bacterial growth and is more commonly used than acetic acid. Combining the two acids has proven to be quite effective. These acids can be corrosive to the haying equipment, if used in their pure form. Buffered acids are less corrosive and still perform the same function, but buffered acids tend to be less effective than the concentrated acids.

**Anhydrous ammonia:** Anhydrous ammonia is more commonly used to improve the feeding value of straw and chaff. It can also be applied to high quality forages to prevent heating and spoilage, when baled at high moisture content. Anhydrous ammonia binds to moisture, reducing the availability to mould and bacteria. It also reduces the number of mould forming bacteria through sterilization. However, anhydrous ammonia can create a toxic compound, if it's applied to high quality forage such as alfalfa. Bales that have been treated with anhydrous ammonia should not be stored for long periods. It is recommended that the hay be used within one to two months.

**Bacterial inoculants:** Bacterial inoculants are similar to silage inoculants. Most contain lactic acid forming bacteria that compete with mould forming organisms and help maintain forage quality. Some inoculants contain combinations of bacteria and enzymes. The role of the enzyme is to break down plant cells, making more cellulose and starch available to the lactic acid forming bacteria.

**Will preservatives increase the quality of the hay?** The role of forage preservatives is to reduce losses due to moulds and heating. As a rule, preservatives will not increase forage quality. Once forage has begun to deteriorate, adding a preservative will not enhance the quality.

Non-protein nitrogen, such as anhydrous ammonia, can slightly increase the crude protein levels in the hay. Some of the ammonia will bind with plant material and increase the overall protein content of the feed.

Preservatives may allow for baling of forages at higher moisture contents and reduce the time required for the forage to dry. There should be less leaf shatter and potentially better quality forage, when baling at higher moisture content. However, it is still imperative that proper hay making procedures be followed when both harvesting and baling.

**When do I need to use a preservative?** Preservatives are most effective, when the moisture content of the hay is between 20 and 30 percent. Preservatives are not effective, if the hay moisture content is greater than 30 percent. The amount of preservative needed will depend on the moisture content of the forage when it is in the swath.

**How do I know what preservative will work the best for me?**

Preservative	Mode of Action	Application Method	Moisture Content of Hay	Pros & Cons
Propionic acid	Controls mould and bacterial growth by altering pH	Liquid-added before swaths are baled	Up to 30%	-Can be stored -Corrosive
Acetic acid	Controls mould and bacterial growth by altering pH	Liquid-added before swaths are baled	Up to 30%	-Can be stored -Corrosive -Not as effective as propionic acid
Buffered Acid (i.e. Ammonium propionate)	Controls mould and bacterial growth	Liquid-added before swaths are baled	Up to 30%	-Not as corrosive as concentrated acids -Not as effective as concentrated acids
Bacterial Inoculants	Competes with other microorganisms in the hay	Liquid-added before swaths are baled	Up to 23%	-Can't be stored -Designed for silage production (aerobic condition with moisture content of 45% or more)
Anhydrous Ammonia	Binds to moisture in hay making it unavailable to bacteria	Injected into bale or released into covered bale stack	Up to 30%	-Increase CP -Can't be used on all hay crops -Can't store treated hay for long periods

*For more information, please contact the Agriculture Knowledge Centre at 1-866-457-2377.*

**Saskatchewan Hay Market Report**  
*Saskatchewan Agriculture and Food*  
[www.agr.gov.sk.ca/feedforage](http://www.agr.gov.sk.ca/feedforage)

**Baled Forage Prices to July 25, 2005**

	Listings	Listings Priced	Tons Listed	Tons Priced	Lowest Price/ton	Highest Price/ton	Weighted Average Price/ton
<b>Alfalfa</b>	22	18	8,211	7,360	\$20	\$80	\$54
<b>Brome</b>	2	2	400	400	\$50	\$50	\$50
<b>Brome/Alfalfa</b>	14	13	3,905	3,635	\$21	\$81	\$52
<b>Greenfeed</b>	1	1	72	72	\$22	\$22	\$22
<b>Other</b>	3	3	349	349	\$29	\$50	\$38
<b>Slough Hay</b>	1	0	28	0			
<b>Straw</b>	2	1	150	150	\$18	\$18	\$18
<b>Wild Hay</b>	1	0	83				

**Ducks Unlimited Canada Haying and Grazing Tenders***Ducks Unlimited Canada*

Haying and grazing tenders show minimal response and very low prices. Some fields received no bids and others with tenders ranging from \$3.00 to \$10.00 per ton standing. This was for mixed forages stands planted by Ducks Unlimited Canada for use as dense nesting cover. Grazing bids were being granted at 30 cents per cow/calf day.

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**Western Alfalfa Milling Report***Submitted by Mike Letwiniuk**Norquay SK*

Alfalfa yields to date have been averaging 1.25 tons/acre with quality being excellent. Due to excellent growing conditions and no spring frost damage, yields are expected to reach 2 ton/acre. Product is sold as ¼ inch fibre pellets. The dehy market is strong and Western Alfalfa Milling has pre-sold the majority of its production into the Asian market.

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**Wyoming Hay Report***July 23, 2005 - USDA Market News Service**Dennis Widga**Torrington, Wyoming*[www.ams.usda.gov/mnreports/to\\_gr310.txt](http://www.ams.usda.gov/mnreports/to_gr310.txt)

Trade continues slow with prices steady to weak. Demand very light for cow hay. Demand is good for dairy quality hay, however supplies are limited in western Nebraska and eastern Wyoming. Second cutting started in eastern Wyoming and western Nebraska. All prices quoted as dollars per ton FOB stack in medium to large square bales and rounds, unless otherwise noted. Horse hay in small squares.

***Eastern Wyoming***

Alfalfa - Horse quality 109.00; Supreme 90.00-95.00; Good 60.00-70.00; Fair 50.00-55.00, 75.00 delivered; ground and delivered 76.00. Alfalfa/Grass 60.00. Alfalfa/Orchard for horses 125.00. Dehydrated Alfalfa Pellets (17 percent protein) 125.00 wholesale.

***Central and Western Wyoming***

Alfalfa - Supreme 100.00; Premium 70.00-80.00; Good 60.00-70.00. Alfalfa/Grass 80.00-85.00. Alfalfa Cubes 90.00-100.00. Wheat Straw certified 35.00-40.00.

***Western Nebraska***

Alfalfa - Horse quality small squares 100.00-125.00, 3.00 per bale; Supreme 90.00-95.00; Premium 80.00; Good 60.00-70.00; Fair 50.00-55.00; ground and delivered 65.00-80.00.

Alfalfa/Grass 90.00-100.00. Wheat Straw 20.00-30.00. Alfalfa Pellets sun-cured, 13 percent protein, less than five ton 135.00 retail, 5-12 ton 115.00, over 12 ton 105.00.

***Western South Dakota***

Alfalfa - Good to Premium 70.00-80.00. Ground and delivered 85.00. Alfalfa/Grass 60.00-70.00. Oat Hay 65.00.

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**Weekly Montana Hay Report**

*July 25, 2005 - USDA Market News Service*

*Justin Lumpkin, OIC*

*Billings, Montana*

Compared to last week, trade remains slow on light to moderate inquiry with light demand. Producers having another good week putting up hay; the weather has been very cooperative. Very few producers have priced their hay; they are taking a wait and see approach. Tonnage looks to be good across the state. All sales FOB the stack and per ton basis in large rounds or large square bales, unless otherwise stated.

***Alfalfa:*** Premium new crop alfalfa in small squares (couple loads for horse interest) 100.00. Good new crop alfalfa in small squares for horse interest 85.00; couple loads dairy 80.00. Good alfalfa old crop in large squares and rounds 60.00-65.00 north-central and northeast parts of the state.

***Alfalfa/grass mix:*** Good small squares 85.00-90.00, large squares and rounds 60.00-75.00, a little at 55.00.

***Grass:*** Good large squares 75.00.

***Timothy:*** No reported sales.

***Straw:*** No reported sales.

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**Alfalfa Relative Feed Value (RFV):**

Supreme over 185; premium 170-185; good 150 -170; fair 130-150; low < 130.

**Grass Hay Crude Protein Scale:**

Premium over 13; good 9-13; fair 5-9; low < 5.

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The Editors would like to thank the following people who contributed to this issue: Philip Curry – Saskatchewan Health; Public Health Agency of Canada; Michel Tremblay – Saskatchewan Agriculture and Food; Ducks Unlimited Canada; Mike Letwiniuk – Western Alfalfa Milling; Saskatchewan Agriculture and Food; USDA Market News Service; Christy Winquist- Saskatchewan Agriculture and Food.

*The Saskatchewan Hay Report is published by the Saskatchewan Forage Council and is available online at [www.saskforage.ca](http://www.saskforage.ca). Comments and suggestions are appreciated. If you wish to be placed on an electronic mailing list or have articles and suggestions for upcoming issues, please send them to the editors:*

**Art Westlund, PAg**

P.O. Box 937

Melfort SK S0E 1A0

Phone: 306.752.5086

Fax: 306.752.2462

E-mail: [f.westlund@sasktel.net](mailto:f.westlund@sasktel.net)

**Janice Bruynooghe, MSc, PAg**

Executive Director, Saskatchewan Forage Council

129 – 72 Campus Drive

Saskatoon SK S7N 5B5

Phone: 306.966.2148

Fax: 306.966.2614

E-mail: [jbruynooghe@saskforage.ca](mailto:jbruynooghe@saskforage.ca)

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