

Saskatchewan Forage Market Report

As of January 2013



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1) Executive Summary

After two years of excessive production of hay resulting in depressed forage prices, 2012 has been an interesting year for Saskatchewan hay producers and consumers. As anticipated, forage prices have been rising over the course of 2012 in response to pressures both within and outside the province.

Environmental conditions have always been crucial in determining how hay prices will change, and 2012 was no exception. The US drought and the severe hay shortage in Eastern Canada had an influence on prices and movement in 2012, particularly in Southern Saskatchewan, where these outside markets were more easily accessed. Saskatchewan's own weather has also impacted the hay markets in 2012. Although hay yields were average to slightly above-average in most of the province, early winter weather in most of Saskatchewan had some producers who purchase hay concerned about buying sufficient supplies and other livestock producers reluctant to sell hay until they have a chance to see how supplies will hold out.

Transportation costs for hay have remained relatively static in 2012 despite rising forage prices and the increased interest in selling hay to US and Eastern Canadian markets. Transporters generally report that they are being kept very busy locally and are also receiving more requests this year to transport hay to locations outside Saskatchewan. The exception to this trend appears to be in northern parts of the province, where a numbers of transporters contacted during this survey have chosen to exit the hay transport industry. High grain prices and easier loading/unloading of grain versus hay appears to have drawn some transporters away from forages.

Forages continue to compete for acres with the currently profitable annual grain and oilseed crops, making it difficult for livestock producers and feeders that depend on purchasing forage for winter to find enough good quality feed in some areas. At the same time, the high feed grain prices in 2012 have made forages more desirable as a lower cost feed source. Beef herd numbers and prices as well as grain prices will be worth watching in 2013, along with the growing conditions that will ultimately determine how much forage is produced in Saskatchewan.

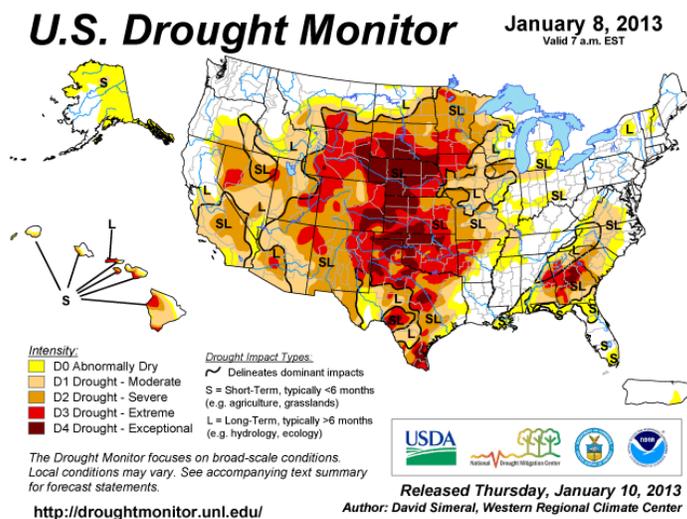
2) Recap of 2012 Growing Season in Relation to Forage Production

Cool temperatures in the spring of 2012 meant a slow start for the hay crop in the past year. The majority of the province received ample moisture resulting in average to slightly above average yields of hay. Southern Saskatchewan experienced a lack of moisture beginning late in the summer in many areas and this, combined with the early appearance of the alfalfa weevil in parts of south and central Saskatchewan resulted in yields being lower than many had anticipated. Up to a 30% reduction in yield from alfalfa stands due to weevil damage have been reported. For those regions where adequate moisture was received, hay quality often suffered due to wet conditions during cutting and baling. Producers have reported that hay from the 2012 season is often not as high in quality as that from 2011. Those able to put hay up in late June and early July avoided some of these showers and as a result have good to excellent quality hay. Hay cut during later July and into August is of poorer quality.

According to the Saskatchewan Ministry of Agriculture 2012 Final Crop Report, hay land and pasture topsoil moisture on average in Saskatchewan is rated as one per cent surplus, 36 per cent adequate, 38 per cent short and 25 per cent very short. The southeast, southwest, and west central regions are reporting that the majority of their topsoil is short or very short on moisture. In spite of these numbers, livestock producers are indicating they have adequate to surplus supplies of hay (97%), straw (98%), green feed (100%) and feed grain (89%) for their winter feeding needs. This is likely due to the fact that moisture deficits showed up later in the growing season after hay had been cut in many areas as well as the carryover of hay in drier parts of the province, or above average yields further north.

Hay supplies were very abundant in both 2010 and 2011, and the average to above-average production of hay in 2012 has meant that there was little change in hay supplies until the winter of 2012/2013. Average forage prices are increasing across most of the province, particularly in areas where access to the US export market is available. As the US continues to endure widespread drought conditions, US producers are looking farther afield for forages, meaning an increase in exports by Saskatchewan growers, and upward pressure on forage prices. According to the summer 2012 edition of *CattleFax Insight*, over 50% of the US beef cow herd is located in the drought area (<http://www.beefissuesquarterly.com/CMDocs/BeefIssues/InsightSummer2012.pdf>). Pastures are in poor condition in this area and forage is becoming very costly. Figure 1 below shows the January 8, 2013 USDA drought map. The November 30, 2012 North American Drought Monitor map is located in Appendix A.

Figure 1. USDA Drought Monitor Map for January 8, 2013



In 2012, the estimated dry land hay yield in Saskatchewan was 1.6 tons/acre on average, based on the Ministry of Agriculture Crop Report and information from Regional Forage Specialists (Table 1). The range in yield was from a low of 1.37 tons/acre in the southwest to a high of 1.99 tons/acre in the northeast on average. This is lower than the 2011 dry land hay yield for the province, which was 1.97 tons/acre, but still remains higher compared to a historical average from the date available from the Ministry of Agriculture (1984-1997 and 2008-2011) of 1.38 tons/acre.

Table 1. 2012 Saskatchewan Dryland Hay Yield Estimates (tons/acre)

Region	Report Date	Estimated 2012 Hay Yield	Long-Term Average for Region*
Tisdale	Oct 15	2.0	1.6
Prince Albert	Oct 15	2.0	1.5
North Battleford	Oct 15	1.5	1.4
Kindersley	Oct 15	1.9	1.1
Outlook	Oct 15	1.9	1.4
Watrous	Oct 15	1.9	1.4
Yorkton	Oct 15	1.9	1.5
Weyburn	Oct 15	1.5	1.3
Moose Jaw	Oct 15	1.5	1.3
Swift Current	Oct 15	1.4	1.4
Provincial Average		1.97	1.38

Source: Saskatchewan Ministry of Agriculture Regional Forage Specialists and Crop Reports

**Long-term yields based on combined available Saskatchewan Ministry of Agriculture data, 1984 to 1997 and 2008 to 2012*

At the time of the January 2012 report, prices discovered for alfalfa/grass hay averaged \$54/tonne with the low price recorded at \$29/tonne and the high at \$83/tonne. The January 2013 weighted average price for alfalfa/grass hay has risen to \$70 per tonne, with a range of \$44/tonne to a high of \$80/tonne. Demand for hay in the US and Eastern Canada, in addition to local demand has driven prices up for all types of forage, and more forage appears to be moving in the southern part of the province, where the US market is more accessible.

In 2012, Saskatchewan beef herd numbers were fairly stable according to Ministry of Agriculture Regional Livestock Specialists. There is still a great deal of optimism in the industry in spite of setbacks such as the closure at the XL Foods plant in Alberta during September and October 2012. With US herd numbers continuing to decrease, producers in Saskatchewan are hopeful that prices will continue to rise and there are indications (through feedlot placement numbers and sale data) that more heifers have been retained in the past year. Overall in 2012, feeder cattle prices were higher than in 2011, remaining well over \$170/cwt in the early months of 2012 and only dipping below 2011 numbers in October 2012 (Grant Zalinko, Cattle Market Update, December 12, 2012). If these trends continue, we may see expansion of the beef cow industry in Saskatchewan in 2013 which would have an impact on forage demand and prices.

The early snowfall in many parts of the province meant that many producers were forced to start feeding cattle earlier than anticipated. This may increase hay prices if feed stocks are reduced and livestock producers are forced to compete in local markets to purchase hay. Certainly, according to feed pellet suppliers, demand for feed pellets has risen in 2012, possibly as an alternative to supplementing forages with high-priced feed grains. As well, if demand continues to draw Saskatchewan hay into the US, prices could become increasingly competitive if supplies begin to tighten over the winter.

An unknown factor when considering hay supplies is the amount of spoilage occurring in carryover hay. Many areas of the province have abundant forage on hand due to higher

production in 2010 and 2011 which created a surplus in storage. Depending on weather conditions and storage methods, heavy rains and high humidity may have created more spoilage in bales than producers realize. In some cases, up to 30% spoilage has been reported in 2010 bales being fed in the winter of 2012/2013. If these high levels of wasted hay are widespread, the excess supply may be reduced more quickly than estimated.

Straw remained a difficult product to source in parts of Saskatchewan in 2012. As in 2011, grain producers often prefer to return straw to the cropland and are therefore reluctant to bale straw or leave swaths to be baled by livestock producers. Demand remains strong, particularly from feedlots, and there are few sellers in the market. Producers that were able to harvest winter wheat crops in south-central and east-central Saskatchewan report that straw yields on winter wheat were excellent, as high as five bales to the acre on some fields. Mixed farms that produce both livestock and cereal grains were able to produce sufficient straw in these areas for winter livestock needs. Winter snowfall and temperatures will determine whether these straw supplies will remain going into 2013.

3) Field Pest Impact and Projections for Forages

Field pests can cause significant impact to both the quality and the quantity of forages produced in Saskatchewan. Monitoring of field pests in the province by Saskatchewan Ministry of Agriculture staff, AAFC and other researchers aids in assessing the impact they have on forage crops and in forecasting potential problem species and areas in the upcoming production season.

Gophers (Richardson's Ground Squirrels), generally cause forage impact through early spring feeding on new growth, preferring to establish burrows in open terrain where they can spot predators. For this reason, newly seeded forages or overgrazed areas are particularly susceptible to damage by gophers. The Saskatchewan Ministry of Agriculture reports that very little damage was incurred to forage crops from gopher activity in 2012. Gopher populations have shown a continued decline in the past few years and are only causing damage in localized areas with higher populations.

The 2012 grasshopper forecast predicted a low risk for this pest in most areas of Saskatchewan. The highest risk areas leading into 2012 were the northwest (Meadow Lake) and the southwest (rural municipalities 18 and 19) adjacent to the U.S. border. The grasshopper forecast showed lighter infestations in the Watrous and Kindersley areas in 2012, with most of the rest of the province not a concern for grasshopper populations. For the most part, it appears that grasshopper populations were below economic thresholds in the 2012 growing season. Saskatchewan's Provincial Insect and Vertebrate Pest Specialist indicates that although the cool, wet spring was not favourable for grasshopper population development, the hot and dry conditions that followed in late summer would have been advantageous for those grasshoppers that did hatch and survive. Overall, the grasshopper risk to forage crops is low for most of Saskatchewan in the 2013 growing season (Appendix B), however much will depend on the 2013 environmental conditions.

The pest of concern in Saskatchewan in 2012 was the alfalfa weevil. High densities of alfalfa weevils cause devastating impacts to alfalfa crops through severe defoliation. In 2012, many areas of the province experienced infestations up to three weeks earlier than anticipated and in

higher densities than in previous years. The 2010-2012 Alfalfa Insect Survey published January 11, 2013 (Appendix B) details efforts to monitor numbers of alfalfa pests, including alfalfa weevils, through sweeps of alfalfa fields throughout the province and compilation of insect counts from these sweeps. The Agriculture and Agri-Food Canada Entomologist suspects that the mild winters of 2010/2011 and 2011/2012 may have aided in the survival of weevils, leading to increases in populations and movement of insects west and northwest within the province. In 2012, alfalfa weevils were present in 88% of alfalfa fields sampled, an increase from 2010 where alfalfa weevils were only found in 60% of fields. Using conservative economic threshold numbers of over 70% of stems damaged and 40 weevils per sweep, at least 9 of the 42 fields sampled in Saskatchewan in 2012 may have warranted control of the alfalfa weevil.

Another pest of note from the Alfalfa Insect Survey is the alfalfa blotch leafminer. This pest moved into Manitoba about 15 years ago from the United States and has been steadily moving west and north-west. Populations have been growing throughout the 2010-2012 survey period, and in 2012, 36 fields in all regions of Saskatchewan showed damage by alfalfa blotch leafminer. The level of damage done by these insects was not estimated in the report, and it appears that damage done by alfalfa weevils can mask the leaf stippling and mining damage to alfalfa plants by leafminer. Continued observation of this pest will be warranted in the 2013 growing season.

For more detailed pest and disease information, please refer to Appendix B for the 2012 Saskatchewan Forage Insect and Disease Report (compiled by J. Soroka, AAFC Entomologist).

4) Current Saskatchewan and Neighbouring Transportation Costs

At the time of this survey, forage transport rates have not increased from a year ago, despite increasing forage prices. Transporters reported that they are charging the same rates, or slightly higher and noted that any changes in rates would only be based on fuel prices (Table 2). Average short haul rates in Table 2 below show a decrease from the average rate of \$131/hour in January 2012, but this higher number in 2012 included one transporter charging \$175/hour who has now exited the market as well as one individual charging \$140/hour who was not available for comment in 2013.

With the exception of Northern Saskatchewan, transporters in the province report that they are very busy and have been during the entire fall/winter season. Although many transport companies report that they have been contacted to haul hay to the US, most have indicated they are content to haul within Saskatchewan or Western Canada. Despite speculation about large volumes of hay moving to US markets, it appears that this movement has not had a significant impact on the average Saskatchewan hay hauler in terms of price. Transport of hay to the US appears to be a niche market, as the majority of hay haulers contacted during this price survey report that they have no intention of transporting hay outside of Western Canada.

The story appears to be different in Northern Saskatchewan, where a number of transporters report that they no longer haul hay or that they are considering getting out of the business or charging higher prices. Concerns with extended times to load and unload compared to hauling other commodities as well as the difficulty accessing the hay fields were cited for this

dissatisfaction in the industry. High grain prices and easier loading/unloading of grain versus hay has drawn some transporters away from forages.

Table 2. Transportation Costs for Forages in Saskatchewan

Location	Rate in \$/loaded mile (long hauls)	Rate in \$/hr (short hauls)
Northeast	6.00	125.00
Northwest		100.00
West	5.50	113.00
Central	6.60	125.00
East		120.00
South	5.50	
Southeast	5.50	120.00
Southwest	5.75	120.00
Provincial Average	5.81	117.50

A survey was also conducted in neighbouring provinces to help shed light on hay and feed transportation costs in Alberta and Manitoba. This information provides a gauge on transportation costs for hay being exported out of province, an important variable in overall forage price determination. Throughout Alberta and Manitoba current rates are reported in the range of \$5.00-\$6.80/loaded mile, with an average of \$5.70/loaded mile. There is little change to the transport costs in Alberta and Manitoba, and as is the case with the Saskatchewan numbers, any increases in price are reported to be related to fuel costs. Short hauls are reported at \$95.00-150.00/hour with an average of \$120.00/hour. Refer to Table 3 for current hay transportation rates in regions of Alberta and Manitoba.

Table 3. Transportation Costs for Forages in Alberta (AB) & Manitoba (MB)

Location	Rate in \$/loaded mile (long hauls)	Rate in \$/hr (short hauls)
Northern AB	6.80	150
Eastern AB	6.00	125
Southern AB		110
Western MB	5.00	95
Central MB	5.00	
Average	5.70	120

Reports continue to come in of hay moving to the drought-stricken areas of the US, with estimates from some regions that as much as 10-20% of the hay crop is being exported south. These reports are difficult to substantiate, however, anecdotal reports of producers and transporters not receiving payment for hay moving to the US has made some growers cautious about exploring this market. By August of 2012, hay imports to Texas were already up 60% over 2011 imports at the same time of year. Canada and Mexico almost exclusively provide all (non-domestic) hay imported to Texas, with Canada reportedly providing over 80% of the imports in 2012 (<http://www.coopext.colostate.edu/WR/droughteffectsonhayimports.pdf>). Listings on the Hay Exchange (www.hayexchange.com) for the State of Texas show prices for alfalfa as high as \$275-\$395/tonne. A number of ads on the Hay Hotline website were from Saskatchewan

producers, showing that there is increasing interest in capturing higher prices through sales in the US drought regions where there is strong demand.

Although Western Canadian transporters noted an increased volume of calls requesting hay transport to the US in 2012, many prefer to remain in their home province or in Western Canada, citing lack of knowledge of US state regulations; preference to remain close to home; uncertainty regarding payment and the fact that they already have plenty of work within home provinces as reasons. Trucks on back-hauls continue to be used as a source of transportation. According to some hay exporters and hay brokers, it costs an estimated \$110-200.00/tonne to transport hay from Saskatchewan to the southern U.S. Large grain brokers such as JGL Grain, Rayglen Commodities and Johnston's are working with transporters to move forage to US markets as well.

While the drought in Texas has significantly impacted forage movement in Saskatchewan, rain in that region in late fall alleviated some of the drought hazard. The areas rated "extreme" to "exceptional" by the US Drought Monitor (see Map Figure 1) are now north of Texas into the central US, including Nebraska; Kansas; Oklahoma; Colorado and Wyoming as some of the driest areas as of January 1, 2013. As of September 2012, the USDA expanded drought assistance to 22 states. Besides financial assistance, these measures include the U.S. Department of Transportation's emergency waivers for federal truck weight regulations and hours of service requirements to get help to drought-stricken communities (USDA Press Release Sept 19, 2012). These State transport waivers are allowing round bales to be hauled through some States and have increased load size and weight specifications in others. It appears that these transport waivers continue to be renewed every few months. Environmental conditions in 2013 will largely impact how the US drought will continue to influence Saskatchewan Forage Prices. If the drought continues to impact the US Midwest and Saskatchewan forage yields are abundant in 2013, more producers and transporters may decide to take advantage of this potentially lucrative market.

Another region creating a demand for Saskatchewan hay is Eastern Canada. The Hay East 2012 initiative is a partnership involving farm organizations across Canada. On November 3, 2012, the Ontario and federal governments committed funding to help transport donated hay from Western Canada to eastern Canadian farmers in need. The governments committed \$500,000, provided on a cost-shared basis. They will also match cash donations made to Hay East 2012 on a cost-shared basis up to \$2.5 million. According to reports from Hay East 2012 (www.hayeast2012.com), thousands of bales from Western Canada were delivered in October and November 2012, with over 60,000 more bales being requested by Ontario livestock producers.

5) Current Saskatchewan Forage Prices

Table 4 reports the current prices for various types of forages in Saskatchewan derived from this survey. Numbers presented are collected from various sources including the fall 2012 and winter 2012/2013 Saskatchewan Ministry of Agriculture Feed and Forage Listing Service, hay and straw listings in the Western Producer from September 2012, weekly through January 18, 2013, as well as contact with the major feedlots in Saskatchewan (lot capacity of 1,000 to 30,000 head), auction marts and hay growers/brokers throughout Saskatchewan. Prices presented in

table 4 are weighted average prices based on settled, asking and buying prices discovered in Saskatchewan in 2012/2013.

In general, forage prices have risen in the past 12 months for most classes of hay. Price discovery has been made more challenging in the winter of 2012/2013 as livestock producers appear to be holding onto hay supplies until they see how the winter weather progresses in many parts of the province. Other than in southern Saskatchewan, much more hay was moving in fall but with early winter conditions, trading has slowed dramatically, particularly in local markets. Many auction markets and feedlots report that they obtained supplies of hay and straw in the fall and do not need to purchase a great deal more during winter. Of interest is the fact that for both grass hay and alfalfa-grass hay the average buying prices were higher than the asking prices. This illustrates that there may still be some uncertainty among producers as to what is happening in forage markets currently. This price discrepancy may be a signal that the quality of hay on offer is widely varied. For the most part, the buying prices reported here are from larger consumers of hay such as feedlots or auction marts, and they may have had to pay more to obtain the quality of hay required for their operations.

The majority of hay trading is alfalfa-grass hay, which has increased in price substantially in the past year. At the time of the January 2012 report, alfalfa-grass hay was priced at \$54/tonne based on weighted averages. As reported below (Table 4), the (weighted) prices for this same type of hay in January 2013 average \$70/tonne. This is an increase of \$16/tonne on average in spite of reports that hay quality was lower in many parts of the province in the 2012 growing season compared to 2011. However, some of the hay being sold is from the 2011 season especially in those areas where a large surplus still exists.

Grass- Straight grass forage is less predominant than mixed stands of grass and legumes. However, auction marts in Saskatchewan seem to prefer high percentage grass hay (80-90% grass component) for young calves coming through their facilities. The wide range of prices seen in grass hay is largely due to the variability in quality of this commodity as well as presentation (small square vs large round). Auction marts commented that they try to source high quality grass hay (thus demanding a higher price), while other users (feedlots or cow calf producers) can often utilize the lower quality, lower priced types of this product in their rations.

Certified Organic Hay- No prices were discovered for certified organic hay during the winter 2012/2013 price survey. The demand for this product appears to be slight and this does not appear to be much movement of organic hay currently. In discussion with organic hay producers, it was reported that certified organic hay they grew in 2012 was sold as commercial product rather than organic as it was hard to move hay. This suggests that organic livestock producers requiring organic feed likely produce their own feed or have made private arrangements to ensure steady availability of certified organic product.

Greenfeed- Few offerings of greenfeed were discovered in this survey, similar to the 2011 report. With grain prices high, the economics of growing greenfeed are uncertain and producers generally prefer to combine grain crops if possible, or to seed a perennial forage crop to minimize feeding costs. Some areas reported that the hot temperatures in late summer reduced greenfeed yields for those that did grow it in 2012. Although seeding conditions were not ideal throughout much of the province, hotter and drier harvest conditions made it possible for grain to mature in many areas and did not leave producers cutting greenfeed as a last resort.

While greenfeed can be an excellent feed source, concerns over high nitrate levels from early frost make it less viable further north in the province. Judging by the lack of available greenfeed for sale, it appears to be used primarily by producers for feeding their own livestock.

Table 4. Saskatchewan Forage Prices as of January 18, 2013

Forage Type	# of Traders	Quantity (T)	High (\$/T)	Low (\$/T)	Weighted Average (\$/T)
Grass Hay	14	1887	113	44	72
Alfalfa (1 st Cut)	17	7576	110	70	90
Alfalfa (2 nd Cut)	8	1221	123	88	113
Alfalfa-Grass	35	15990	80	44	70
Greenfeed	2	105	77	59	68
Clover	1	75	59	59	59
Cereal Straw	10	1798	60	33	46

LEGEND: T = tonne (all prices in CDN \$ per metric tonne (\$/T))

Clover- Clover remains a relatively uncommon feed source in Saskatchewan. In this survey, only one asking price was discovered for clover (in Alberta). With clover seed costing only slightly less than alfalfa seed, and with input costs higher than ever, producers generally select perennials rather than a biennial such as clover. Clover tends to be seeded as a cover crop or part of mixed hay, and when produced continuously on one field is susceptible to clover weevil. For these reasons, there are few producers selling clover forage and there does not appear to be a consistent market for it. Feedlots and auction markets continue to use very little to none of this product. Clover hay appears to be grown and used on farm with little trading hands.

Straw- As with prior years' reports, auction markets and feedlots described difficulty sourcing straw. As the trend in Saskatchewan continues to move to larger farming operations with a strong focus on minimum tillage and returning nutrients to the soil, there is less straw removed from annual cropland that can be utilized by livestock producers. During this survey, the price of cereal straw averaged \$46/tonne, with the high end asking price from straw creeping higher than the 2012 asking prices. With alfalfa-grass hay prices ranging from \$44-80/tonne and more availability of tame hay, producers may be forced to consider bedding animals with low quality hay rather than straw. The exception to this trend is the excellent cereal straw yields in some areas of south-central and east-central Saskatchewan. In particular, producers who were fortunate enough to have good winter wheat crops saw above-average yields of straw in east-central Saskatchewan.

Standing Forages- In the September 2012 price scan, standing forages ranged from \$15/tonne for grass to a high of \$33/tonne for alfalfa, with the average for alfalfa/grass mixed standing

forage at about \$22/tonne. These prices however were based on relatively few traders participating in the market. With good feed supplies in most of the province and the cost of cutting and baling hay ranging from \$33 to \$44 per tonne (Saskatchewan Ministry of Agriculture), there was not a strong demand for standing forage in 2012.

Silage- The price of barley silage reflects the price of feed. Feed barley grain prices continued to remain strong in 2012, with prices currently rising as high as \$70/tonne, but averaging \$61/tonne. High prices for barley support higher valuation of barley silage and feedlots surveyed expect to price silage accordingly for rations, but not a lot of movement of barley silage to feedlots was seen in 2012. Feedlots surveyed in the winter of 2012/2013 generally reported that they had abundant supplies of silage in their pits or could make their own silage, so were not concerned with purchasing this feed.

Silage tends to be priced based on a formula using the current feed barley price, with many of the prices reflecting the calculated ration price for the silage rather than a purchased or settled price.

Alfalfa silage remained lower in price than barley silage, averaging \$50/tonne. Dairy operations continue to be the main consumers of alfalfa silage.

Dehy Alfalfa- Production capacity remains similar to last year in western Canada, but plants are reporting difficulties in sourcing product. Plants that process timothy and alfalfa in Alberta reported that they had processed little to no dehy alfalfa in the 2012 season due to competitive prices for this forage. Saskatchewan alfalfa processors also reported greater difficulty in procuring forage due to difficulty in finding stands with a high percentage of alfalfa at affordable prices, as well as due to quality issues with the abundant rainfall in 2012. The average price paid for alfalfa standing crop in 2012 was \$45/tonne. This is an increase over the price one year ago (January 2012) of \$34/tonne. At this time, standing crop prices for 2013 are not available, but will be dependent on availability of forage and weather conditions. Increasing energy and transportation costs continue to have a negative effect on this industry in Canada, as well as the continually decreasing cow herd numbers and abundant supply of affordable hay. Demand for dehy product remained strong in 2012 in the international markets including the US, Asia, Europe and the Middle East.

Alfalfa processing plants in Saskatchewan utilize sun-cured (baled) alfalfa to make cubes, as well as standing and sun-cured alfalfa to produce dehy alfalfa pellets. The sun-cured pellet is a lower-quality pellet made from baled alfalfa. Some processors reported difficulty in 2012/2013 with sourcing high quality alfalfa hay with a low enough percentage of grass to produce quality dehy products. Supplies of both sun-cured and dehy pellets are variable to low and there will likely be very little production of new product until the 2013 alfalfa crop is available.

Table 5 provides average dehy product prices in Saskatchewan for 2012.

Table 5. Saskatchewan Dehy Product Prices for 2012

Product Type	Price \$/T
*Dehy Pellets	300
**Sun-cured Pellets	240
***Cubes	240

(prices in \$ per metric tonne (\$/T))

**Dehy Pellets – alfalfa pellets made from standing alfalfa*

***Sun-cured Pellets – alfalfa pellets made from baled alfalfa*

****Cubes-alfalfa cubes made from baled and standing alfalfa*

Export Timothy- Few companies participate in the export timothy market in Western Canada. With plants mainly located in Alberta and already established in the export market, there is not a lot of movement of timothy in Saskatchewan. Due to the high cost of freight, Alberta companies continue to source timothy locally rather than in Saskatchewan.

Timothy prices have increased since the January 2012 report. A year ago, premium timothy was priced at \$232/tonne and that price has now increased to an average of \$240/tonne in Saskatchewan and Alberta. The demand has stayed relatively constant for timothy and reports indicate that markets are well established and stable. The increased price may be partly a response to a slightly lower yield and more quality issues than in 2011, as well as a general decrease in acres. The 2011 year was an excellent year for both quality and yield for timothy. Saskatchewan yield was reported as average and that quality was good, although producers in some areas may have struggled with high humidity, making the hay slow to cure. Alberta timothy processors are reporting approximately 2% lower yields than 2011 as well as lower quality in 2012, with more product rained on or bleached by dew.

Saskatchewan timothy processors primarily focus on domestic or US markets for their product. A variety of timothy or timothy/alfalfa blended cubes are produced for the equine market and while some of this product is shipped to Eastern Canada, the majority enters the US market. Shipping product domestically or to the US means lower freight costs than participating in the international markets.

Timothy processors in Alberta did not tend to participate in domestic markets in 2012/2013 and primarily exported their products to Asian countries, particularly Japan and Korea. Demand in Asian markets remains strong they have not seen any real change in where the product is being shipped in the past year. The Middle East remains a developing market for timothy as well.

Table 6 shows the average prices paid for 2012 timothy crop delivered to Alberta and Saskatchewan plants.

Table 6. Timothy Prices for 2012 Crop in AB & SK

Timothy Quality Level	Price \$/T
Horse Hay or Supreme	240
Premium	228
Choice or Low Premium	206
Standard	170
Utility	121

(prices in \$ per metric tonne (\$/T))

6) Regional Forage Pricing Trends

South-west and south-central: Supplies of hay in the south-central region were adequate to surplus for 99-100% of producers according to the Final Crop Report from the Saskatchewan Ministry of Agriculture going into the winter of 2012/2013. As with other regions of the province, supplies may be decreasing more quickly than many anticipated as November and December brought early snow and cold weather to south-central Saskatchewan. Hay yields were average in the region, ranging from 1.37 to 1.52 tons/acre throughout the south for dry land alfalfa-grass hay. Haying weather was favourable in the region through July. However, the hot and dry weather left the region with very little in the way of soil moisture reserves, which may impact spring forage production potential. Availability of straw is mixed for the area, with some producers reporting above-average yields of straw, but feedlots and auction markets describing difficulty in obtaining adequate straw for winter bedding needs.

The Regional Forage Specialist in the southwest area confirms that with the abundant supplies of hay from past years and good production this year, there is sufficient hay that a good portion of it is being moved to the US drought areas. Average quality hay for beef cattle is being priced in the \$60-80/tonne range for locally fed hay but is closer to \$130/tonne for hay shipped south. Alfalfa weevil was not as much of a problem in the Swift Current area, but there were reports of weevils in the Hodgeville/Gravelbourg/Rush Lake areas of the southwest

Alfalfa weevils seriously impacted hay yields in the south-central region in the 2012 growing season. As the Alfalfa Weevil Survey Map in Appendix B illustrates, all sweeps in fields in this area found at least five weevils per sweep, and producers reported that weevil damage was apparent early in the season. The south-west does not show as high a population of alfalfa weevils, but the number of weevils found in sweeps has increased over the three years of the survey.

Southeast: Reports from sources including the Saskatchewan Ministry of Agriculture (SMA) crop reports and the Regional Forage Specialist indicate that there is still a surplus of hay in this area, although yields were not above average in 2012. Last year at this time many producers enjoyed a two year supply of hay due to high yields over the 2010 and 2011 growing seasons. With average hay yields in the area in 2012, that supply is likely to remain the same or decrease slightly. Moisture and growing conditions were favourable for hay production, but a significant reduction in yield occurred due to alfalfa weevil infestation. The alfalfa weevils were two to three weeks earlier than expected and in numbers never seen before in the region. The Regional Forage Specialists estimates that the alfalfa weevil caused a 25% reduction in hay yield in the Southeast in 2012, particularly in pure alfalfa or high percentage alfalfa stands. It is uncertain whether the alfalfa weevil population will be high again in 2013 as it is difficult to predict. Although hay prices were depressed in 2010 and 2011 due to high supplies, the proximity to the US border and demand for forage in drought-stricken US states has put pressure on prices for 2012 crop. Prices as high as \$100/Tonne have been reported for large square bales with a high percentage of alfalfa. Although it is difficult to substantiate, it has been suggested that over 10% of the hay crop from this region is being transported to the US this year.

West-central: Reports from the west-central area, including the SMA Regional Forage Specialist indicate that 2012 was a very good year for growing forages. Yields were reported as above-average, with dry land alfalfa-brome hay yielding 1.91 tons/acre on average in 2012. Producers who began haying prior to the first week of July were often rewarded with good quality hay that was not rained on in the swath. After the first week of July, weather was more variable and mixed showers caused weathering of some hay crops. Some area producers reported taking a second cut of hay in 2012, which is not necessarily the norm for this region.

Feed supplies are very good in the west-central region, with the SMA Final Crop Report indicating 100% of producers having adequate to surplus supplies of hay, straw and feed grains, and 99% reporting adequate to surplus greenfeed stocks. Abundant supplies are due to the above-average forage crop in both 2011 and 2012 leaving producers with excess feed. Some supplies will have been consumed as the early winter feeding season may lead to higher than average hay consumption over the winter of 2012/2013.

There were no major negative pest impacts to the forage crop in the west-central region in 2012 and currently there are no pests of concern going into the 2013 year. Alfalfa weevil counts were conducted in the area, and although some weevils were discovered, there were not enough to cause economic concerns at this point.

There has not been a great deal of hay movement in the area this winter. Distance removes this region from some of the busier hay export markets, such as Eastern Canada and the US. With abundant supplies in the area, this may change if the US drought continues unabated and prices become more competitive for hay export.

Central: The Saskatchewan Ministry of Agriculture (SMA) Regional Forage Specialist reports that following a wet, cool spring with some localized flooding, the central region of Saskatchewan experienced a dry fall which greatly assisted in completion of grain crop harvest. As a result, moving into winter, soil moisture conditions were adequate to very dry throughout areas of the region. Cattle were moved onto fall grazing sites, chaff piles or stubble grazing during October

through November. Early winter conditions combined with low feed quality saw cattle experiencing declines in body condition coming off fall grazing. If cold and snowy conditions persist through the 2012/2013 winter, forage supplies may decrease more sharply than expected as producers attempt to compensate for this lower feed quality and to improve cattle body condition.

Forage harvesting was delayed due to the spring growing conditions, and some frost damage occurred on first-cut forages. These delays resulted in a later than normal second cut of hay or no second cut at all in some areas. Although yields were fairly consistent for the averages in this region, quality is a concern due to later cutting, showers on swaths and high humidity which created difficult curing and baling conditions. Dry land yields for alfalfa-grass hay are estimated to average 1.8 tonnes/acre in this area. There is not as much hay movement in the central area as is being reported further south in the province. Average grass-alfalfa hay prices are reportedly in the \$65-\$75/tonne range. Straw is hard to source and, where available is being priced at between \$35-\$40/tonne. Very little greenfeed was produced, other than cereal crops intended for grain or silage production that were damaged by severe weather events in the area. High grain prices continue to put pressure on forage acres, but no concrete numbers are available for forage acreage decline in the past year.

Moisture conditions for the 2013 growing season are still somewhat uncertain, but the early snowfall and substantial snow cover of areas does indicate adequate soil moisture recharge. Concern of surplus moisture and/or flooding may develop if significant amounts of snow fall continue to occur.

East-central: Reports from east-central region forage growers and the Regional Forage Specialist indicate that most producers had average hay crops and adequate moisture in the 2012 growing season. The Quill Lake and Humboldt region continued to deal with reclamation of flooded areas from the previous years and some new flooding in 2012. Moisture remained at good levels into July, with scattered heavy rain showers causing some interruptions of haying progress. Dry and hot conditions in August and going into the winter of 2012/2013 indicated that t snowfall would be required to supply spring moisture.

Greenfeed yields were lower than anticipated due to the hot, dry conditions causing the grain crops to head prematurely.

Hay is moving locally to meet winter demands, but there are few reports of hay moving to the US this winter, other than from south of Moose Mountain Park. Prices were averaging \$60/tonne for alfalfa-grass hay over the summer and into fall, but have risen as high as \$75/tonne for these same forages when producers saw indications that it could be a long, cold winter. Supplies of hay were high going into the feeding season, but more feed may be used than was expected.

As in other areas of the province, alfalfa weevil created problems for hay growers in 2012 in the east-central region. The alfalfa weevil had previously been present in the area but impacts were much wider spread in 2012. In some fields, the plants would not progress to flowering as the larvae consumed all the developing flower buds. Infestations were spotty across the area. As there is the potential for a repeated cycle of infestations, producers should scout alfalfa stands for weevils as early as June in 2013.

Northeast: The SMA Regional Forage Specialist as well as other sources in Northeast Saskatchewan report that hay supplies are adequate in this region. Most producers expect to have sufficient forage for the winter months provided temperatures do not continue to stay below normal for an extended period. Yields in the area were about average this year, estimated at 1.5 tonnes/acre for dry land alfalfa hay. Growing conditions were reported as being good for the summer of 2012 and with adequate moisture in autumn of 2012 and the plentiful snowfall already received it is expected that the hay crops will be off to a good start in spring of 2013.

Field pests, including alfalfa weevil, were not a major problem for growers in the Northeast this past season. Cereal armyworm was a pest in the Carrot River and Hudson Bay areas, but as it does not generally overwinter, it may not be a problem in 2013. There is not a lot of hay movement in this area at this time, and indeed a number of transporters that had been hauling hay in the North/Northeast part of the province indicated that there is not as much demand for hay transport this year.

North-central: Similar to other parts of northern Saskatchewan, the north-central area saw average to above average yields. Dry land alfalfa-brome hay averages for northern Saskatchewan were reported as 1.74 tons/acre in the SMA Final Crop Report, with adequate to surplus supplies of hay throughout the region.

The Regional Forage Specialist and local area producers report steady trading in forage markets in the north-central region. As with other northern parts of the province, the greater distance to the US and Eastern Canada seems to be acting as a barrier preventing hay growers from entering this market. If there is sufficient forage in 2013, this may change if growers see positive indications that these markets will be lucrative sources of income. Although higher prices have been advertised, it appears that good quality alfalfa-grass hay is trading in the \$55-\$65/tonne range, this price being set mainly by livestock producers in the local area who purchase winter feed. Prices for hay have been kept in check by the availability of poor cereal crops for livestock feeds resulting from the high levels of moisture the area saw in 2012.

With good levels of soil moisture going into winter and good snow cover to date indicates this area should see a good start for perennial forage crops come spring of 2013. With high moisture levels comes risk of disease in cereals, so growers will likely be cautious about seeding annual crops for forage in the northern parts of Saskatchewan.

North-west: The north-west region experienced a late start to the growing season due to cold conditions throughout the spring. Rains began in mid-July and persisted through to August, meaning that producers who did not harvest hay in early July saw lower quality hay and green feed crops. The hay harvested in mid-July and later is lower in protein and energy and the Provincial Forage Specialist reports having a number of calls already about cattle in poor body condition that were consuming this feed without supplemental energy.

Hay yields were average in north-west Saskatchewan in 2012 (1.25 to 1.5 tons/acre). Reports from the region indicate that there is no hay surplus due to the early and severe winter and that some producers may face forage shortages if the difficult winter conditions persist. Hay prices are in the \$55-66/tonne range and there is little hay being traded.

7) Current Alternative Feedstuff Prices

As feed represents the largest single production expense for beef cattle operations, lower-cost alternative feeds can be important as a supplement or replacement to forage, particularly in feedlots and backgrounding operations. By-products often vary nutritionally based on the quality of the crops and the types of crops being processed. For this reason, prices may vary not only with supply and demand but based on nutritional value of the final product as well. High feed grain prices have resulted in higher asking prices for the majority of alternative feed products, but there is still little to no availability of many of these products, as many are contracted in advance. In general, prices for these commodities are based on the current market prices for forages and feed grains. Table 7 reports prices for various alternative feedstuffs.

Screenings- Grain merchants and terminals report that they tend to have repeat customers or waiting lists for buyers and that screenings move very quickly. Feedlots and feed mills in close proximity are the major buyers for this product as demand is strong and it is difficult/inefficient to transport screenings and particularly chaff. Prices are up significantly from one year ago due to increased feed grain prices.

Canola meal & Canola pellets- Price is based off of the price of soybeans and soybean meal and can fluctuate daily. Much of the canola meal and pellet product is contracted into the US dairy feed market, but small loads for local producers are sometimes available. There is currently no availability of spot contracts of either canola meal or pellets as reported by Saskatchewan processors. The Canola Council of Canada reports that prices have been steadily rising through 2012. In January 2012, the average Canadian price for canola meal was \$216.93/tonne, and the October 2012 price averaged \$369.52/tonne (<http://www.canolacouncil.org/markets-stats/statistics/current-canola-oil,-meal,-and-seed-prices>).

Alfalfa pellets- The price for these pellets is up from last year due to increased market demand from exports, as well as increased cost to source alfalfa. Processors report difficulty sourcing alfalfa bales (high quality) or standing alfalfa. Producers of alfalfa pellets contacted report that any product they had on offer is now sold out and there will not be more available until after the 2013 crop has been processed. A standard dehy pellet, geared towards beef production, is available, but trucking costs often limit utilization. Dehy pellets available this year were produced from oat or wheat green feed hay, with one of the processors offering a certified organic product.

Fortified grain screening pellets- In December of 2012 and January 2013, suppliers of grain screening pellets observed increased interest in their products and orders were up from previous years. Producers ordering pellets in December 2012 were waiting at least two weeks for their product to arrive, and in some parts of the province, wait times extended to two months. Compared to January 2012, prices for grain screening pellets have increased along with grain prices. Suppliers noted that some types of pellets would not be offered this year due to demand for feed grains in the US due to the drought. Fusarium levels in wheat were high in some parts of the province as well, meaning that wheat screenings would not be used in pellets. Comparison from a year ago shows an average increase of \$40/tonne in January 2013 compared to the same pellets in January 2012.

Table 7. Alternative Feedstuff Prices and Availability

Commodity	Price	Details	Availability
Grain Screening Products			
Screenings	\$225/T	#1 cracked wheat or durum	None available. All contracted
Screenings	\$30/T	Light screenings, mainly chaff, light screenings	Some available, much contracted
Screenings	\$120/T	Oat screenings	All contracted
	\$30/T	Loose, unground hulls	All contracted
Oilseed Products			
Canola meal and pellets	\$353/T	36% CP min.	None Jan/Feb/Mar
Legume Products			
Alfalfa pellets	\$240/T	15-16% CP	No availability
Grain Screening Pellets			
Grain pellets	\$208/T	12-16 % CP 63-80% TDN	4 to 8 week order wait at most facilities, good availability of most products
Fortified grain pellets	\$214/T	12-17% CP 63-80% TDN with Rumensin™, vitamin/mineral mix	4-8 week order wait at most facilities, good availability of most products
Ethanol Production Byproducts			
Wet Distillers grains	\$30/T	33-35% DM 34%CP	Little to no availability
Dry Distillers grains	\$270-280/T	34-38% CP 76-77% TDN	Good availability at some locations
Distillers syrup	\$54/T	31% CP 82% TDN	All contracted

LEGEND: T = tonne (prices in \$ per metric tonne (\$/T))

Based on survey of companies in Saskatchewan as of January 18, 2013

Distiller's Grain Products- These by-products consist of the bran and fibre left over when grains are processed to produce ethanol. Both a wet distiller's grain and a dried distiller's grain are available at different energy processors in Saskatchewan. Prices are based on grain and feed prices, and therefore have increased in 2012. There is little availability of the wet product in the winter of 2012/2013, but the dry product is being sold at an average price of \$275/tonne in January 2013 with anticipation of similar prices for February, both within the province and to the US market on rail cars.

A grain price survey from 2012 revealed the following feed grain prices:

Feed Barley- December provincial average - \$226/T (\$4.91/bu)

Feed Wheat- December provincial average - \$272/T (\$7.39/bu)

Feed Durum – December provincial average - \$238/T (\$6.47/bu)

Feed Oats – December provincial average - \$177/T (\$2.72/bu)

8) Adjoining Jurisdictions Forage Price Trends

Transportation costs are the limiting factor for movement of hay to adjoining jurisdictions, however, with the widespread and lengthy drought conditions in the US, more hay than ever appears to be moving south. A real need for forage combined with easing of transport regulations and federal assistance to livestock producers has made selling forages into the US market more feasible, particularly for Saskatchewan forage growers close to the border. With the dry conditions and below average hay production again in the US in 2012, prices in Saskatchewan are being affected by the high prices US livestock producers are paying to source feed including feed grains and forages. Large square bales and even large round bales are now moving south, giving more Saskatchewan producers an opportunity to access this market.

The Canadian Prairies for the most part experienced an average growing season in 2012. Manitoba experienced a similar growing season to Saskatchewan in 2012, with average yields and variable quality in some areas. However, Manitoba did not have the carry-over that Saskatchewan did from 2011 and was therefore depending on the 2012 production to increase hay stocks. Reports from Manitoba are similar to Saskatchewan, with significant hay movement to the US as well as local hay prices rising. Average quality forage for beef cows is estimated at \$50-90/tonne in Manitoba in the winter of 2012/2013.

Table 8 shows the forage prices from listings in Alberta, Manitoba, Montana and North Dakota. Prices from the Alberta government listing were sourced only from the eastern side of the province and only from the western side of the province from the Manitoba government listing. Listings from Montana and South Dakota reflect those from northern counties.

Table 8. Forage Prices in Adjoining Jurisdictions

Forage Type	Alberta Listing	Manitoba Listing	Montana State Listing	North Dakota State Listing
Alfalfa	\$80-120/T (2 offers)	\$154/T (1 offers)	\$132-247/T (5 offers)	\$60-225/T (4 offers)
Alfalfa/grass	\$55-120/T (16 offers)	\$55-88/T (4 offers)	\$88-385/T (8 offers)	\$150-250/T (4 offers)
Grass	\$75/T (1 offers)	\$47-66/T (2 offers)	\$83-176/T (6 offers)	\$45-125/T (8 offers)
Straw	\$45-50/T (5 offers)	\$22-41/T (8 offers)	\$55-59/T (2 offer)	\$28-55/T (3 offers)
Greenfeed	(0 offers)	\$77/T (1 offer)	\$165/T (1 offers)	(0 offers)

As of January 18, 2013 All prices converted to Can\$/tonne.

Alberta hay offerings showed a large price variation depending on region and quality. The majority of offerings on the Alberta Agriculture hay listing service were for the central, northern or western parts of Alberta, with few listings in southern or eastern Alberta. Convenient access to the US markets from southern Alberta as well as specialized crops such as timothy for the export market mean that less lower-quality feed for beef cattle appear to be for sale in the area.

The USDA weekly hay reports monitor settled prices for hay across auction houses in individual states. Table 9 shows the USDA prices for the week ending January 10, 2013.

http://www.ams.usda.gov/mnreports/to_gr310.txt & http://www.ams.usda.gov/mnreports/bl_gr310.txt

Table 9. USDA Hay Prices (for week ending January 10, 2013)

Forage Type	Eastern Wyoming	Central & Western Wyoming	Western South Dakota	Montana
Alfalfa				
Premium	\$292-309	\$193-276	\$264-287	-
Good	\$215-264	\$220-242	\$264	\$220
Fair	-	-	-	-
Utility	-	-	-	-
Grass	\$242-276	\$220	\$165	\$264*
Alfalfa/Grass	-	-	\$165	-
Straw	-	\$72-77	-	\$66-77
Timothy	-	-	-	-
Greenfeed	-	-	-	-

All prices converted to Can\$/tonne. FOB stack in medium to large square bales and rounds unless otherwise noted.

*Timothy grass hay small square bales

North Dakota –fewer prices were discovered in North Dakota than in Montana, with the USDA reporting that most producers are retaining their feed in anticipation of feed requirements over the upcoming winter. According to the Drought Monitor, most of the counties in North Dakota remain in severe drought. A majority of hay listings for North Dakota were based on sales for CRP (Conservation Reserve Program) hay. Due to drought conditions, many CRP hay contracts were released and bought back, creating a surplus of CRP grass hay. The mature condition of much of this hay has resulted in lower quality feed, thus the lower prices and higher numbers of sellers for grass hay in North Dakota compared to the Canadian Prairie provinces.

Montana – Higher selling prices for hay in Montana reflect the general trend of increasing demand and lower availability in this state. Reports from the USDA indicate that there is very little reported trade in the state due to limited supplies across the entire state. Estimates are that delivered hay may cost producers up to \$200/ton when freight costs are included in the price. The USDA reports that a large quantity of Canadian hay has already been imported to Montana this year to help fill forage needs of Montana livestock producers.

Wyoming: CRP hay prices are also being reported on the USDA website for Wyoming. \$220-234 per tonne is the delivered price quoted in Eastern Wyoming for CRP hay. Another forage commodity trading in all the states detailed in this segment is corn stalk bales. With the large number of corn acres in all these states and livestock producers looking for forage, corn stalk feed is for sale in all areas, with prices averaging \$110-135/tonne. Reports from the USDA are that all hay supplies other than corn stalks are becoming light.

9) 2013 Provincial Forage Market Projections

According to the Saskatchewan Ministry of Agriculture Final Crop report, the provincial hay crop yielded well and quality was generally good. High temperatures in late summer and an alfalfa weevil outbreak in some areas affected the quantity and quality of the hay. The provincial average yield on dryland brome/alfalfa hay was 1.61 tons/acre (range 1.37 tons/acre to 1.99 tons/acre).

SMA Regional Forage Specialists indicate that winter hay supplies are adequate to surplus. Early snow and cold conditions have required producers in some regions to begin feeding forage earlier than expected, and if conditions persist, stocks of hay may be significantly reduced over the winter of 2012/2013.

Environmental conditions will have a strong impact on feed production and prices in the upcoming year. Hay land and pasture topsoil moisture is rated as one per cent surplus, 31 per cent adequate, 39 per cent short and 29 per cent very short across the province. Provincially, southwest Saskatchewan as well as the extreme southeast and isolated areas in the central part of the province experienced the driest conditions going into winter. The Saskatchewan Water Security Agency's December 2012 Report on Hydrological Conditions indicates that the majority of the south and central parts of Saskatchewan received above to well above normal snowfall early in the winter of 2012. Precipitation is predicted to be near normal or above normal for the remainder of the winter, meaning that dry areas of the Province may receive adequate spring runoff to ameliorate some of the negative effects of the hot and dry conditions of summer 2012.

Please refer to Appendix A for a map of Hay and Pasture Topsoil Moisture Conditions and for the Environment Canada Precipitation Anomaly Outlook for Early 2013. Appendix A also contains the most recent North American Drought Monitor Map.

Sources across the province continue to report acres being taken out of forage production in favour of grain and oilseed crops. This trend will likely continue if conditions remain favourable for grain and oilseed producers.

Beef herd numbers will also have an important impact of forage prices going forward. With Saskatchewan herd numbers remaining fairly stable in 2012, a large increase in the overall herd size is unlikely in 2013, even with optimism in the industry. If suspicions that heifer retention is increasing are confirmed in 2013, a gradual increase in the cow herd will likely lead to a steady rise in demand for forages as the herd continues to build. Both cattle prices and grain prices in the upcoming year will dictate whether more acres are converted from forages to grain crops as producers attempt to take advantage of high grain prices.

10) Forage Seed Prices

Table 10 presents an inventory of commonly purchased forage seed prices compiled by surveying the major retail companies in the province. Three classes of forages are presented: grass, legume and native species. All prices are for certified #1 seed unless otherwise stated.

The native seed prices that are provided from retailers are generally spot prices as prices can fluctuate from day to day depending on availability.

Table 10. Forage Seed Prices in Saskatchewan as of January 18, 2013

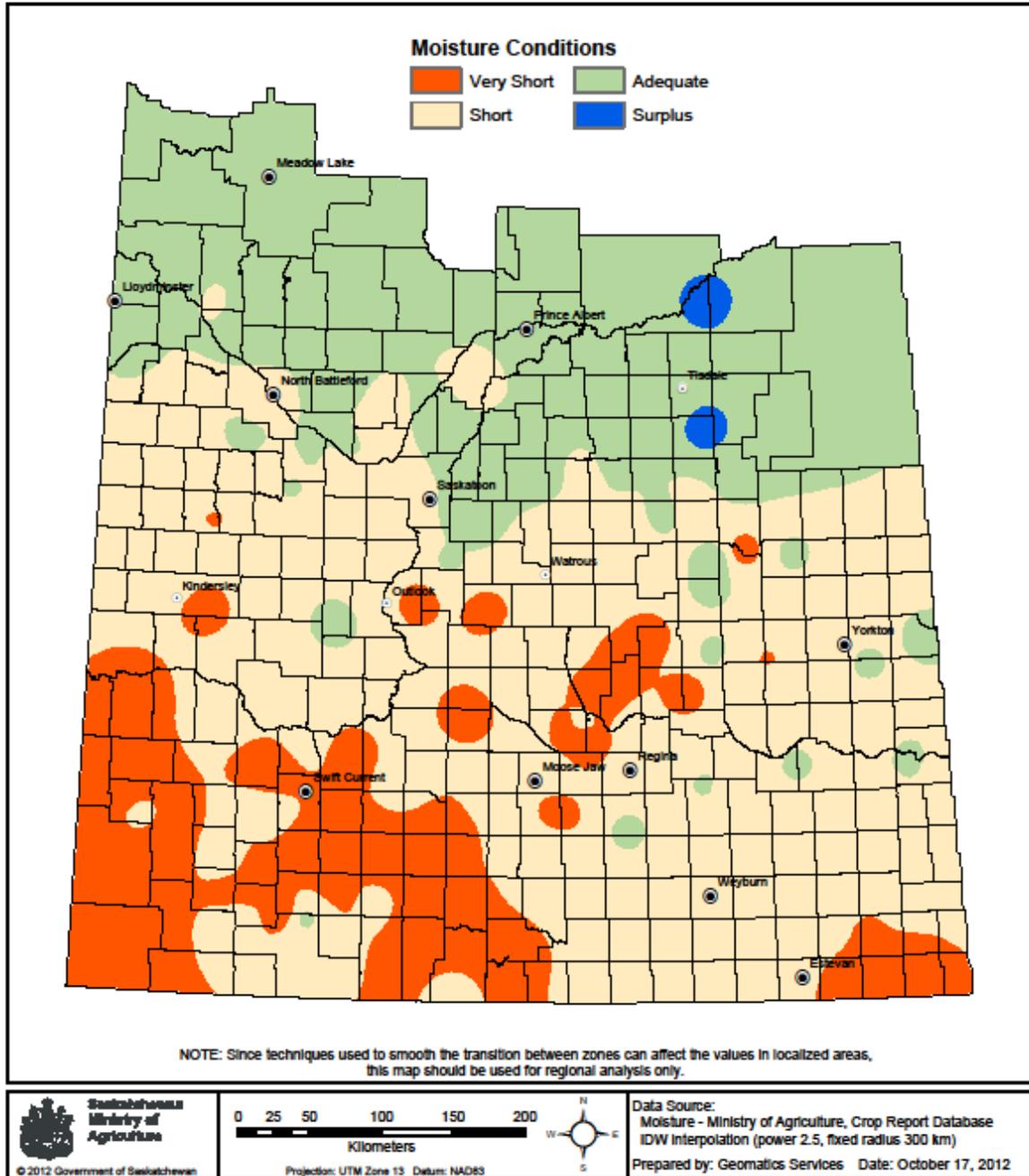
Class	Species	Average Price \$/lb	High	Low
Grasses	Carlton Smooth brome	3.87	4.19	3.39
	Smooth brome (common)	3.82	3.99	3.59
	Fleet Meadow brome	3.61	3.69	3.49
	Meadow brome (common)	3.54	3.59	3.45
	Hybrid brome	4.22	3.79	4.49
	Russian Wildrye	6.25	6.99	4.96
	Tall Fescue	2.70	2.99	2.55
	Fairway Crested wheatgrass	3.62	4.19	3.05
	Kirk Crested wheatgrass	3.16	3.59	2.93
	Crested wheatgrass (common) (only one company reporting)	2.75	2.75	2.75
	Legumes	Alfalfa hay type	4.16	4.49
Alfalfa pasture type		3.95	4.09	3.67
Alfalfa (common)		3.68	3.79	3.45
Cicer milk vetch		4.14	4.49	3.71
Sainfoin		2.99	3.01	2.96
Alsike Clover		2.89	3.09	2.61
Sweet Clover		2.94	3.05	2.72
Sweet Clover (common)		2.58	2.59	2.55
Native		Western Wheatgrass	11.50	12.76
	Northern Wheatgrass	17.92	19.57	16.27
	Slender Wheatgrass	4.58	5.60	4.19
	Green Needlegrass	9.92	10.25	9.58
	June Grass	45.80	65.09	26.50
	Canada Wildrye	16.21	17.91	14.50
	Purple prairie clover	59.47	87.93	31.00

(prices in \$ per pound (\$/lb))

Appendix A: Forecast Maps for Soil and Weather Conditions

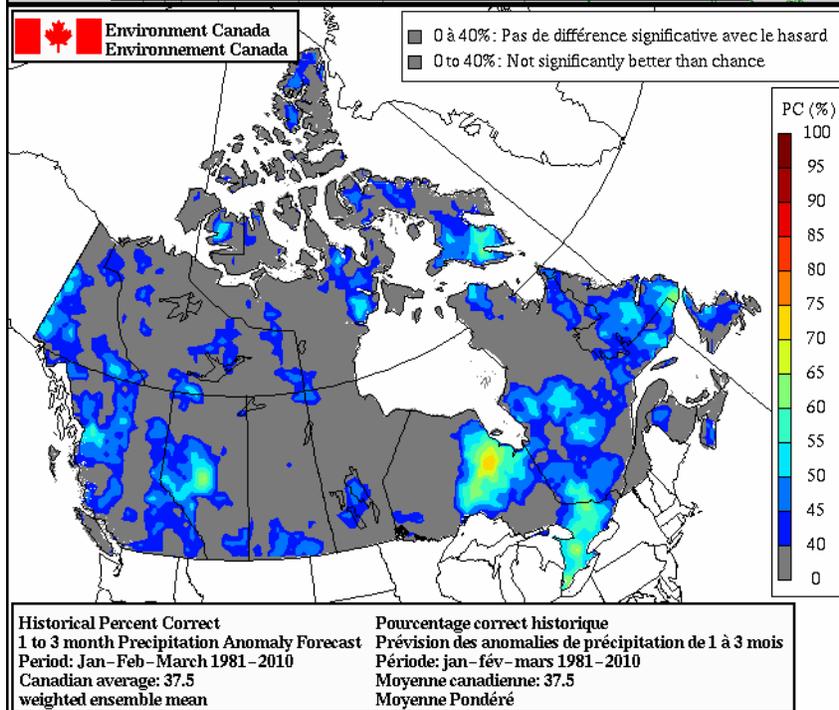
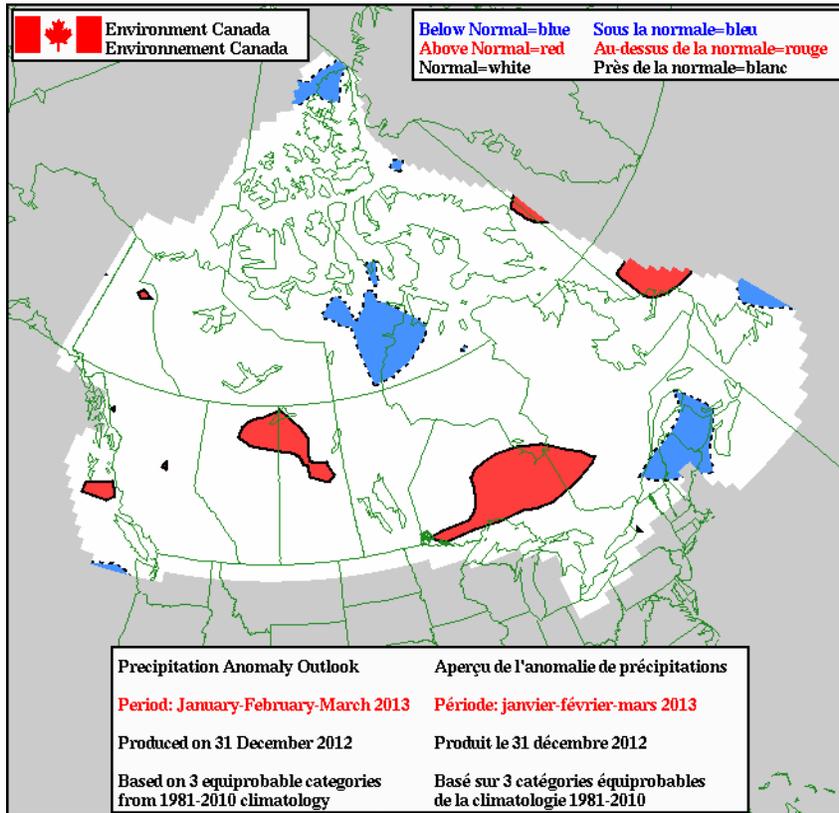
2012 Hay and Pasture Topsoil Moisture Conditions
2013 Precipitation Outlook, 2012 North American Drought Monitor Map

Hay and Pasture Topsoil Moisture Conditions
October 16, 2012



Precipitation Anomaly Outlook for April-May-June 2013

December 31, 2012

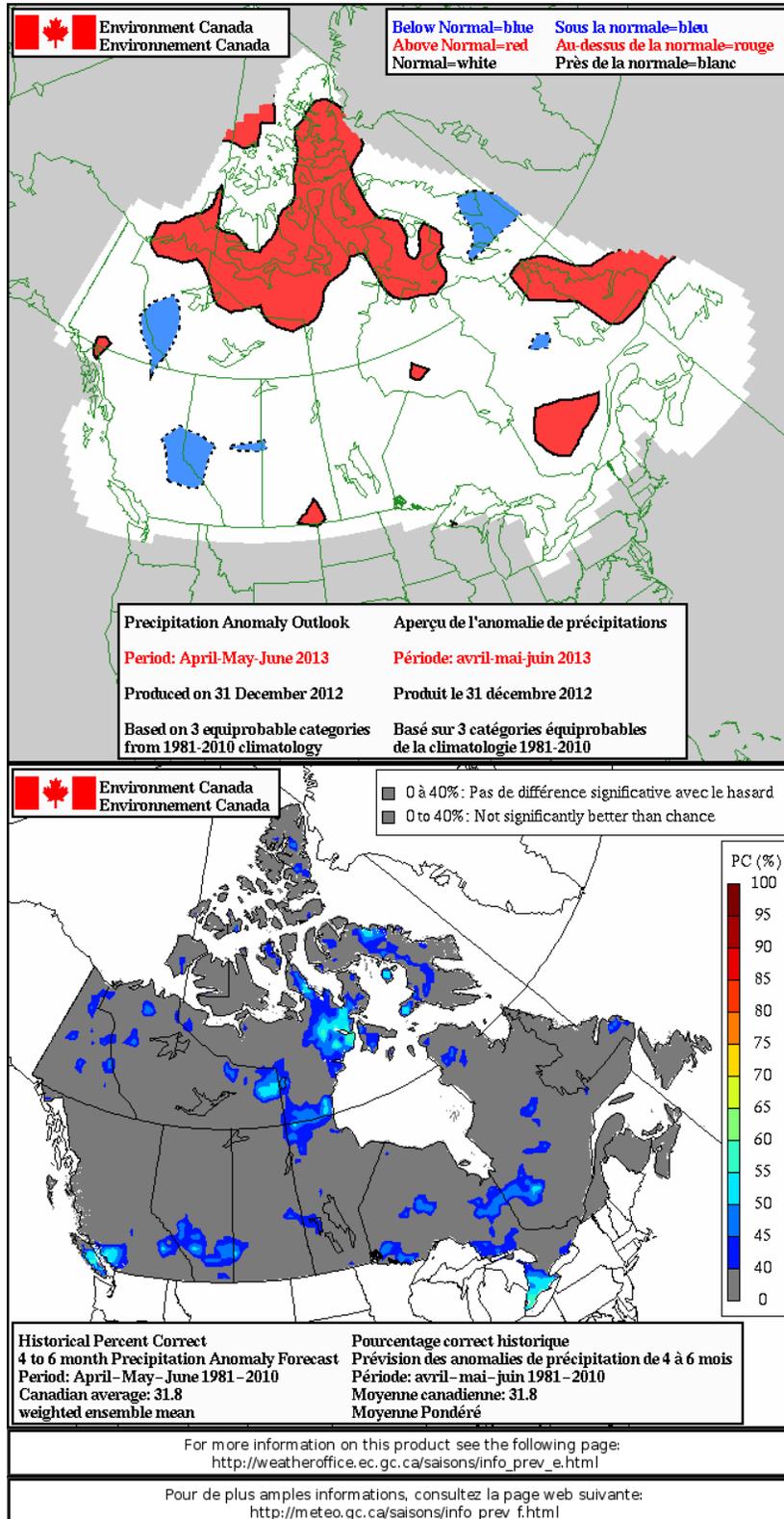


For more information on this product see the following page:
http://weatheroffice.ec.gc.ca/saisons/info_prev_e.html

Pour de plus amples informations, consultez la page web suivante:
http://meteo.gc.ca/saisons/info_prev_f.html

Precipitation Anomaly Outlook for April-May-June 2013

December 31, 2012



North American Drought Monitor

November 30, 2012

Released: December 12, 2012

<http://www.ncdc.noaa.gov/nadm.html>

Analysts:

Canada - Trevor Hadwen*

Richard Rieger*

Mexico - Reynaldo Pascual

Adelina Albanil

U.S.A. - Eric Luebehusen

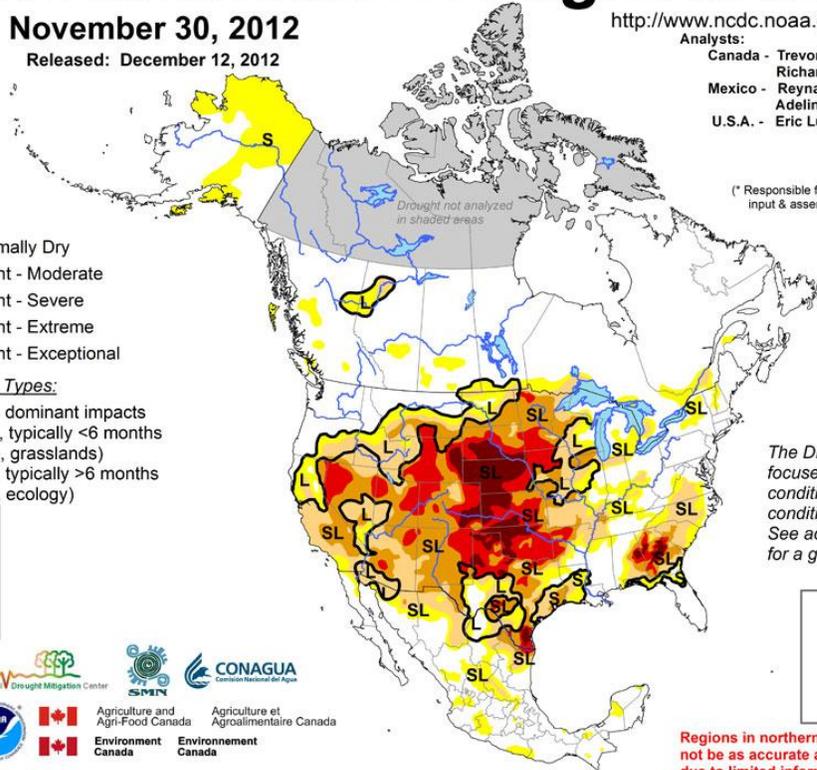
(* Responsible for collecting analysts' input & assembling the NA-DM map)

Intensity:

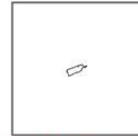
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text for a general summary.

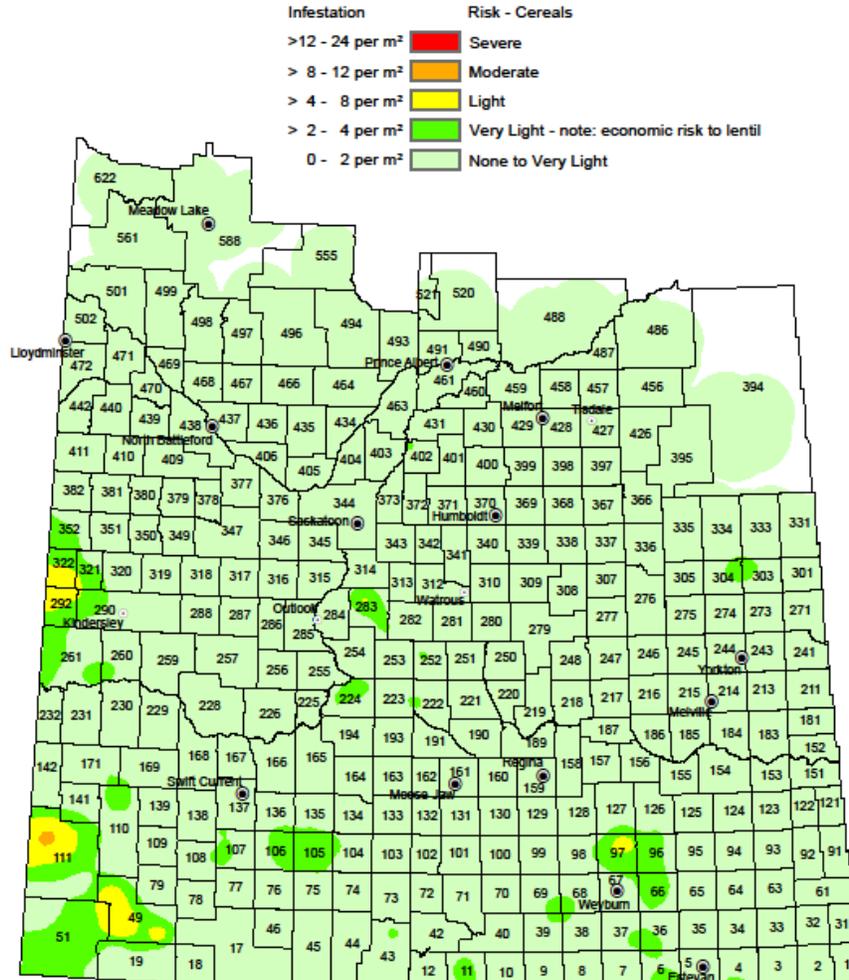


Regions in northern Canada may not be as accurate as other regions due to limited information.

Appendix B: Forage Insect and Disease Data

2013 Saskatchewan Ministry of Agriculture Grasshopper Forecast Map 2012 Insect and Disease Reports and Alfalfa Weevil data

2013 Grasshopper Forecast based on adult grasshopper counts



NOTE: Since techniques used to smooth the transition between zones can affect the values in localized areas, this map should be used for regional analysis only.

 Saskatchewan Ministry of Agriculture <small>© 2012 Government of Saskatchewan</small>	 SASKATCHEWAN CROP INSURANCE CORPORATION	Data Source: Grasshopper Count - Saskatchewan Crop Insurance Corporation Field Staff Prepared by: Geomatics Services Date: December 20, 2012
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Saskatchewan Forage Council Insect and Disease Report 2012

Compiled by J. Soroka, with input from F. Dokken-Bouchard, W. Goerzen, B. Gossen, S. Miller, C. Myhre, C. Peluola, and the Min of Ag Forage Specialists. Maps created by D. Giffen.

In 2012, conditions were cool and wet (50–100% above normal rainfall) early in the growing season in many areas of the province. Dry conditions after the first forage cut suppressed subsequent disease development and resulted in good hay quality. Insect damage may have combined with other factors such as weather and disease in reducing yields in some alfalfa fields in 2012.

Insects: A three year survey of insects in alfalfa hay fields across Saskatchewan conducted by Sask Ministry of Agriculture Forage specialists and Agriculture and Agri-Food Canada research scientist Julie Soroka was concluded in 2012. Alfalfa weevil has become established in most areas of the province, excluding the extreme west and northwestern district (Figures 1-3). The weevil caused severe defoliation and hay yield losses in fields in the southeastern portion of the province in 2012. Weevil development appeared to be about two weeks earlier than normal in the south east, and as a result control decisions were often too late to be effective. The survey found that the wasp *Bathyplectes curculionis*, a parasitoid of alfalfa weevil, is slowly spreading across the province. The alfalfa blotch leafminer fly, a recent immigrant to the province, has spread throughout the alfalfa growing regions, but appears to have little impact on alfalfa hay production. In 2012 an entomopathogenic fungal disease was seen on many alfalfa weevil larvae in locations in the south east that had high weevil numbers; the disease may have led to increased levels of larval mortality.

In other forage crops, insect pests found in NE SK this year included lesser clover leaf weevil and clover casebearer in red clover, cereal armyworm in timothy, lygus and alfalfa plant bug in alfalfa and trefoil, bromegrass seed midge in hybrid bromegrass, and green grass plant bug in crested wheatgrass.

Leafcutting bee research: Occurrence of the wasp, *Pteromalus venustus*, a parasitoid of alfalfa leafcutting bees, was evaluated in the 2011 - 2012 winter survey of Saskatchewan alfalfa leafcutting bee populations. The parasitoid was detected in 0.64% (range 0.00 - 5.81% / sd 1.06) of bee cells analysed from individual samples submitted by Saskatchewan producers (n = 83). *P. venustus* was present in 60.2% of alfalfa leafcutting bee populations surveyed. This chalcid parasitoid has traditionally been controlled during the spring alfalfa leafcutting bee incubation period with dichlorvos resin strips; dichlorvos has been implicated in alfalfa leafcutting bee mortality and is among the organophosphate insecticides under continued review by the PMRA and the EPA. Research is currently being undertaken to identify and evaluate alternative compounds (including essential oils and organic volatiles) which might be incorporated into new strategies for the control of *P. venustus* in *M. rotundata* populations.

Occurrence of chalkbrood disease (*A. aggregata*) was also evaluated in the 2011 - 2012 winter survey of Saskatchewan alfalfa leafcutting bee populations. The disease was present at an extremely low level in bee cells analysed from samples submitted by Saskatchewan producers (n = 83), with occurrence of the sporulating form of chalkbrood disease at 0.002% overall (range 0.00 - 0.15% / sd 0.016) and occurrence of the non-sporulating form of chalkbrood disease at 0.007% overall (range 0.00 - 0.61% / sd 0.067). Paraformaldehyde fumigation and bleach dipping treatment of alfalfa leafcutting bee nest material / alfalfa leafcutting bee cells are two methods currently utilized for control of a broad range of microflora, including *Ascosphaera* spp., occurring in alfalfa leafcutting bee populations. Research is currently being undertaken to

identify alternative anti-microbial compounds and other non-conventional disease control strategies which might be efficacious for the control of *A. aggregata* in *M. rotundata* populations.

Research to monitor parasitoid and disease levels in Saskatchewan alfalfa leafcutting bee populations, and to develop strategies which will assist producers in controlling these problems is ongoing.

Diseases: Blossom blight was noticed in alfalfa and bird's-foot trefoil and black stem was noticed in alfalfa, red clover and sweet clover in north eastern areas of the province. Purple eyespot in timothy was noticed as well. Ergot bodies were not noticed as much in hybrid brome grass seed samples this year as in previous years but numbers of sclerotia bodies seemed to be higher than normal in the alfalfa, red and sweet clover samples.

Foliar disease severity was assessed in nine fields of alfalfa grown for hay in east-central and northwest Saskatchewan in late June. Disease severity was low, with spring black stem [*Phoma medicaginis*] being the dominant disease. Common leaf spot [*Pseudopeziza medicaginis*] was slightly less severe, and yellow leaf blotch [*Leptotrochila medicaginis*] occurred only at trace to low levels. Each of the pathogens was present in all fields assessed. Lepto leaf spot [*Leptosphaerulina trifolii*], downy mildew [*Peronospora trifoliorum*] and stemphylium leaf spot [*Stemphylium botryosum*] were found at trace levels in 5, 3, and 2 fields, respectively.

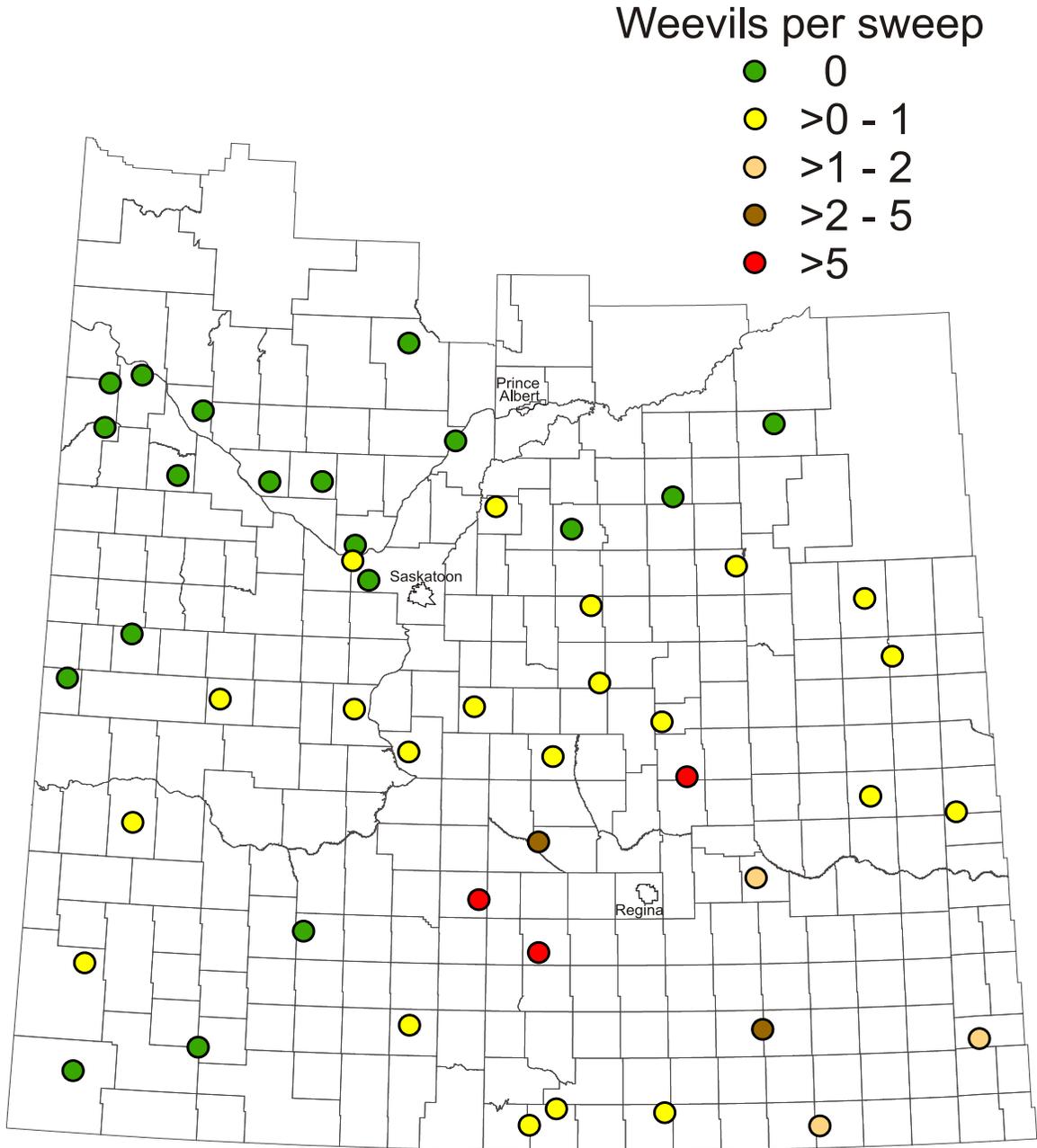
The prevalence of alfalfa root rot may have been higher than normal, given the cool wet conditions in spring. Also, spring black stem (*Phoma medicaginis*) on alfalfa was more prevalent than normal in southeast Saskatchewan, caused by conducive conditions in the spring of 2012 and a build-up of inoculum in 2011.

The Sask Ag Crop Protection Lab received the following forage disease samples:

Crop	Symptom / Disease	Causal Agent	No. Samples
Turf	Leaf rust	<i>Puccinia</i> sp.	1
Timothy	Root rot	<i>Fusarium</i> sp.	1
	Purple eyespot	<i>Drechslera phlei</i>	1
	Leaf blotch		1
Brome grass	Stripe smut	<i>Ustilago striformis</i>	1
	Leaf spot	<i>Pseudoseptoria bromigena</i>	1
		<i>Pyrenophora bromi</i>	1
Slender wheatgrass	Head smut	<i>Ustilago striformis</i>	1
Ryegrass	Environmental		1

Figure 1. Distribution of alfalfa weevils across Saskatchewan 2010.

Alfalfa Weevil Survey 2010



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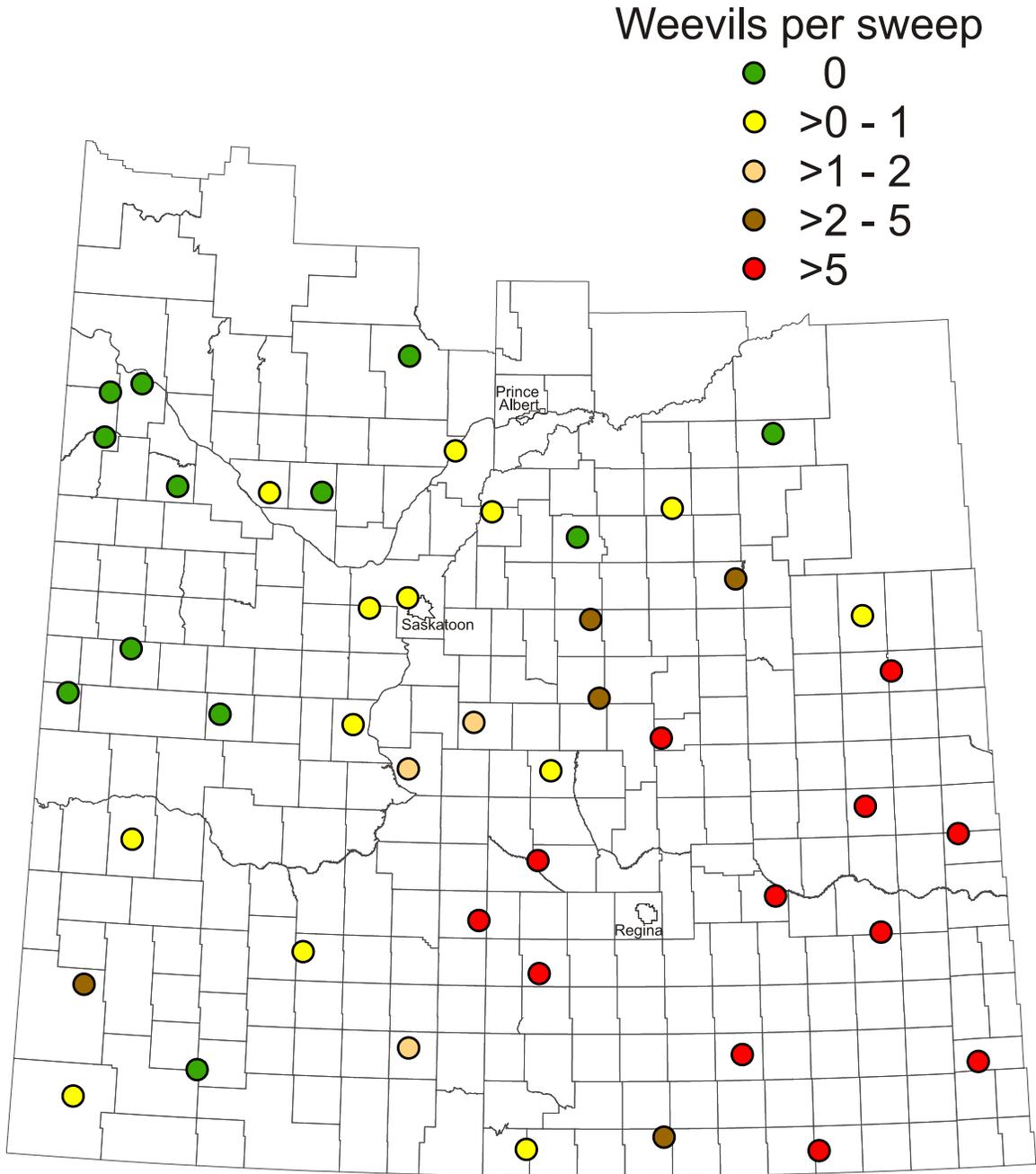
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Agriculture

Figure 2. Distribution of alfalfa weevils across Saskatchewan 2011.

Alfalfa Weevil Survey 2011



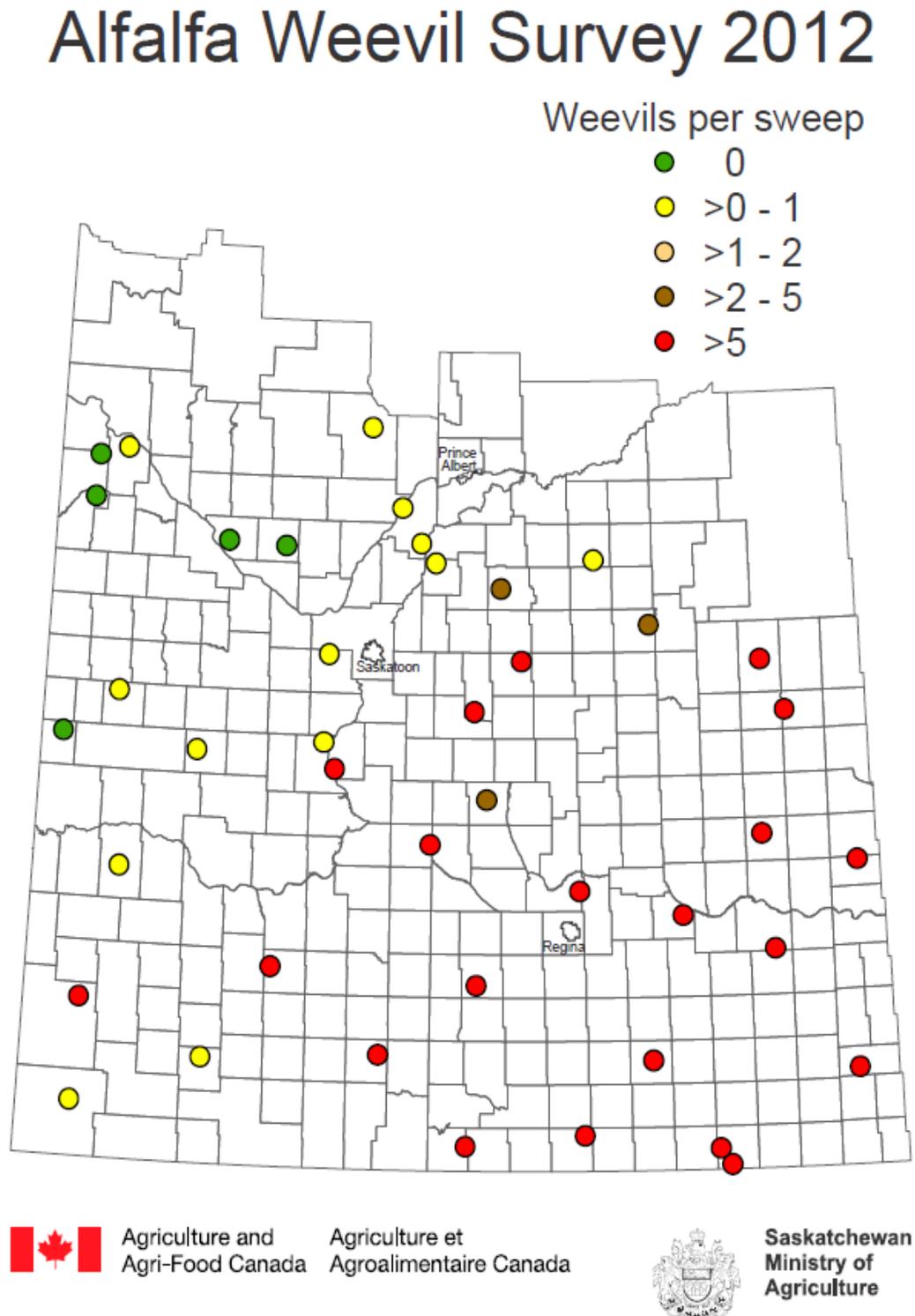
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Figure 3. Distribution of alfalfa weevils across Saskatchewan 2012.



Saskatchewan Forage Insect Survey 2010-2012

Saskatoon Research Centre, Saskatoon, SK - January 11, 2013

Executive Summary: *A three year survey of the insects in Saskatchewan alfalfa fields was conducted by Saskatchewan Ministry of Agriculture Forage Crop Specialists and analyzed by Agriculture and Agri-Food Canada entomologists. In 2010 plant bugs, including lygus and alfalfa plant bugs, were the most frequently encountered pest insects, in 2011 pea aphids were most prevalent, and 2012 alfalfa weevil dominated. From being only an occasional pest in 2010 with little economic impact, by 2012 alfalfa weevil became the principal forage insect pest across the province. Alfalfa weevil has spread in area and has increased in number to all regions of the province except the northwest. The number of fields surveyed that were not infested with alfalfa weevil decreased from 40% in 2010 to 29% in 2011 and 12% in 2012. The parasitic wasp *Bathyplectes curculionis* was also found during the survey, albeit in low numbers, and may be increasing its range slowly. Alfalfa blotch leafminer presence was general throughout the province. In 2012 several fields that had high numbers of alfalfa weevils in the previous year had decreased numbers of weevils, and larvae were found that appeared to be affected by an entomophagous fungal disease. The surveys provided a snapshot of insect species and numbers present in forage alfalfa fields across the province.*

Insects, particularly the alfalfa weevil, have been of growing concern to alfalfa hay producers of Saskatchewan for the last several years. The weevil, a long-time pest in south western Saskatchewan, has recently spread eastward across the province and into Manitoba. To determine the prevalence of this and other insect pests in the crop, in 2010 the Saskatchewan Ministry of Agriculture and Agriculture and Agri-Food Canada collaborated to conduct a survey of alfalfa fields across the province. The survey was repeated in 2011 and 2012.

Ministry of Agriculture Forage Specialists sampled alfalfa hay fields across the province by sweep net and visual inspection of stems in the latter part of June and first part of July. Insects were collected by taking 10 walking sweeps at each of 10 locations per field using a standard 38 cm diameter insect sweep net. The insects were placed in plastic bags and sent to Dr. Julie Soroka at the Saskatoon Research Centre of AAFC. The forage specialists also examined three alfalfa stems at each of the 10 sites per field for evidence of feeding by the alfalfa weevil and in 2011 and 2012 by the alfalfa blotch leafminer, an alfalfa pest new to the province. Dr. Soroka identified the insects and categorized them as pest, beneficial or other insects.

In total, 48 alfalfa fields were surveyed in 2010, 45 in 2011, and 42 in 2012, with an alfalfa content ranging from 50 to 95% of each field. The scant snow cover prior to cold temperatures in the winter of 2009-2010 and the excess moisture and cool weather in the spring of 2010 resulted in poor insect population development over much of the province in that year. The mild winters of 2010-11 and 2011-12 may have aided insect survival, for the numbers of insects collected increased at most sites over the three years of the survey.

Found at low levels in 2010, principally in the southeastern area of the province, alfalfa weevils expanded in number and range in 2011 and 2012 (Tables 1-3). The highest number of alfalfa weevils found in 2010 was in a field near Cupar, with 63 larvae per 10 sweeps, while the highest number found in 2011 was 1350 larvae per 10 sweeps at a field near Churchbridge and in 2012 1180 larvae were found per 10 sweeps in a field near Melville. Alfalfa weevils were present in 29 of 48 or 60% of locations surveyed in 2010, in 32 of 45 fields or 71% of the fields surveyed in

2011, and in 37 of 42 or 88% of fields in 2010 (Figures 1-3). In all three years the lowest alfalfa weevil numbers were found in the northern and north western areas of the province (Figures 1-3).

During the investigation the wasp *Bathyplectes curculionis* (Thomson), a specialist parasitoid of alfalfa weevil, was reared from the weevil, a first Saskatchewan record. In total 26 *Bathyplectes* wasps were collected from 7 locations across the province in 2010; the greatest number of wasps per location, 9, was found at Cupar, which had the greatest number of alfalfa weevils in the survey (Table 1). In 2011 36 wasps were found over 8 locations; the greatest number per location, 19, was collected from a field near Maple Creek, the area of the province in which alfalfa weevils have been present the longest (Table 2). The range of the wasp appears to be slowly extending across the province, for 22 wasps were found in 10 locations in 2012 (Table 3), including areas north of Yorkton and Prince Albert.

When considering the 30 alfalfa stems examined in each field, six of the 48 locations surveyed in 2010 had more than half of the stems exhibiting typical alfalfa weevil damage, while 12 of 45 fields had more than 50% of the stems damaged in 2011 and 24 of 42 fields had more than 50% of the stems damaged in 2012 (Tables 1-3). Occasionally foliar damage was recorded but alfalfa weevils were not found, and sometimes the reverse was true. Light damage in some cases may have been caused by grasshoppers or weevils other than alfalfa weevil. However, when foliar damage was heavy alfalfa weevil numbers were always high.

Because of the tremendous fluctuations in the price of hay, economic thresholds for alfalfa weevil in forage alfalfa are tenuous, and vary in format. The Ontario Ministry of Agriculture, Food and Rural Affairs recommends a threshold based on alfalfa height, with action necessary at weevil densities of 1 larva per 30 cm stem, 2 larvae per 40 cm stem, or 3 larvae at any length of stem. Iowa State University thresholds are 1 to 4 larvae per 30 cm stem when hay prices range from \$100/ton to \$40/ton, respectively. Other economic thresholds include 25-50% of leaves on the upper one-third of the stem showing damage (Bereza, 1977, Ontario Agdex 121/622), 50-70% of terminals showing injury (Carpenter, 1970, J. Econ. Entomol. 63: 1602), or, for alfalfa seed production, 20-25 weevils per 90° sweep (WCCP Crop Protection Guide - Forages). Using conservative threshold figures of more than 70% of stems damaged and 40 weevils per sweep, it is probable that control of alfalfa weevil was unnecessary in Saskatchewan forage fields in 2010, and may have been warranted in 4 of the 45 fields surveyed in 2011 and at least 9 of the 42 fields in 2012.

In 2010 the most frequently encountered insect pests in 18 of 48 fields were lygus bugs (Table 4). Alfalfa plant bug (APB) was most numerous in 15 fields across the province in 2010, especially in the Tisdale and Kindersley districts (Table 4). As piercing sucking insects, lygus bug and alfalfa plant bug are not generally considered pests of forage alfalfa production, and economic thresholds for them in forage alfalfa are not known. However, heavy feeding by APB can stunt alfalfa growth and decrease fitness of the plant, and forage fields with high numbers of APB should be monitored for plant damage, especially in a drought year. Alfalfa weevils were the most frequently occurring pest insect species in five fields in 2010, notably in the south east. 2011 was the year of the aphid. Pea aphids were the dominant insect pest in 25 of the 45 fields sampled (Table 4). Although aphids were very common in 2011, the numbers found were unlikely to affect forage production, especially if crops were not drought-stressed. Second to aphids as the most commonly encountered pest insect in 2011 was alfalfa weevil, the dominant

herbivorous insect in 11 alfalfa fields. In 2012, alfalfa weevil was the most pernicious pest in 23 of 42 alfalfa fields, while 10 fields had lygus as the most numerous insect pest and 6 fields had leafhoppers in greatest number (Table 4).

Most fields had an array of beneficial insect species. Minute pirate bugs, efficient predators of pea aphids and other insects, were the most numerous beneficial insect in 27 fields in 2010, 15 fields in 2011, and 10 fields in 2012. An assortment of parasitic wasps dominated the beneficial insect category in 17 fields in 2010 and 21 fields in both 2011 and 2012. Spiders were the most frequent predator in four fields in 2010, seven in 2011 and 10 in 2012. Other beneficial insects sampled were damsel bugs, ladybird beetles, syrphid fly larvae, rove beetles, big-eyed bugs, tiger beetles, and assassin bugs. In 2011 many sites had notable numbers of dragonflies and damselflies, possibly a reflection of high numbers of mosquitoes in the same samples.

In 2010, 15 of 35 samples of foliage submitted with the insects had evidence of alfalfa blotch leafminer – either stippling of leaves made by female flies, or the actual mines and larvae of the miners (Table 5). This pest insect reached the province from Manitoba from the Great Lakes region of the United States about 15 years ago, and has been spreading west and northward since that time. In 2011 the stem samples examined in the field for alfalfa weevil damage were also examined for signs of alfalfa blotch leafminer presence, which was found in 33 of 42 locations. This may have been an underestimation because heavy feeding by alfalfa weevil can mask evidence of alfalfa blotch leafminer. By 2012 alfalfa samples from 36 fields from all regions surveyed exhibited damage from alfalfa blotch leafminer, suggesting that it has spread throughout the province.

Several alfalfa fields in the south eastern area of the province had severe foliage feeding by alfalfa weevils in 2012, yet weevil numbers were lower than in 2011. Weevil larvae in some of these fields appeared to be infected by an entomopathogenic fungus. For example, 15 to 20% of alfalfa weevil larvae from the sweeps taken near Weyburn were coated with greyish fungal spores. The as-yet unknown fungus may have contributed to weevil mortality after feeding damage occurred.

The surveys provided a snapshot of insect species and numbers present in forage alfalfa fields across the province. It is unlikely that insects were a production problem in 2010, but in 2011 high alfalfa weevil numbers in some fields in the south eastern corner of the province had the potential to decrease forage yields considerably. Left unchecked, they may have compromised the crop's capacity to produce high hay yields in 2012. Continued high weevil feeding pressure may weaken the ability of the crop to overcome winter stresses and lead to stand reduction. On the other hand, the presence of fungal spores on weevils, the spread of the parasitic wasp, and an increase in the number of other beneficial insects are positive indications that biological control is becoming important in control of weevil populations.

Acknowledgements: Samplers were Glenn Barclay, André Bonneau, Bryan Doig and Alicia Olson, Colby Elford, Al Foster, John Hauer, Linda Hunt, Todd Jorgenson, Lorne Klein, Trevor Lennox, Nadia Mori, the late Don Perreault, Ian Schemenauer, Sarah Sommerfeld and Charlotte Ward.

Julie Soroka examined the samples. We thank Andy Bennett, AAFC Ottawa, for identification of *Bathyplectes curculionis* and David Giffen, AAFC Saskatoon, for creating the maps.

Table 1. Alfalfa weevil and parasitic wasp *Bathyplectes curculionis* levels in alfalfa fields across Saskatchewan, 2010.

Location	Alfalfa weevils/ 10sweeps	% stems damaged	<i>Bathypl-ectes</i> /field	Location	Alfalfa weevils/ 10sweeps	% stems damaged	<i>Bathypl-ectes</i> /field
Shaunavon	0	0	0	Saskatoon	0.2	6.7	?
Vidora	0	0	0	Asquith	0	3.3	?
Maple Creek	7.1	0	0	Conquest	0.1	13.3	0
Swift Current	0	0	0	Elbow	3.2	3.3	5
Moose Jaw	52.9	90	0	Davidson	1.2	10	0
Chamberlain	21.3	87	0	Nokomis	6.2	16.7	0
La Fleche	0.1	10	0	Stalwart	0.5	10	
Bengough	1.8	30	1	Raymore	10.3	100	5
Mortlach	56.0	93	0	Cutknife	0	0	0
Coronach	0.5	30	0	Neilburg	0	0	0
Gladmar	1.1	3.3	0	Lashburn	0	0	0
Estevan	13.0	17	0	Maidstone	0	0	0
Redvers	11.1	20	1	Edam	0	0	0
Cupar	62.9	93	9	N Battleford	0	0	0
Weyburn	22.8	30	1	Speers	0	0	0
Indian Head	11.5	73	4	Borden	0	0	0
Melville	7.1	33	0	Middle Lake	0	23.3	0
Preeceville	0.2	16.7	0	Wakaw	0.1	3.3	0
Norquay	3.8	20	0	Duck Lake	0	20	0
Churchbridge	10.1	16.7	0	Canwood	0	10	0
Marengo	0	0	0	Star City	0	0	0
Lemsford	0.1	0	0	Rose Valley	0	0	0
Fiske	0.3	3.3	0	Arborfield	0.1	0	0
Coleville	0	3.3	0	Humbolt	0.2	0	0

Table 2. Alfalfa weevil and parasitic wasp *Bathyplectes curculionis* levels in alfalfa fields across Saskatchewan, 2011

Location	Alfalfa weevils/ 10 sweeps	% stems damaged	<i>Bathypl-ectes</i> /field	Location	Alfalfa weevils/ 10sweeps	% stems damaged	<i>Bathypl-ectes</i> / field
Shaunavon	0	53	0	Saskatoon	0.7	0	0
Vidora	0.3	30	2	Grandora	0.1	0	0
Maple Creek	25.3	83	19	Macrorie	0.2	13.3	0
Swift Current	1.6	6.7	0	Elbow	10.5	10	0
Moose Jaw	314	3.3	0	Davidson	18.9	23.3	3
Chamberlain	179	70	0	Nokomis	22.1	36.7	0
La Fleche	10.9	36.7	2	Stalwart	8.2	30	0
				Raymore	59.3	76.7	1
Mortlach	132	3.3		Cutknife	0	10	0
Coronach	4.3	3.7	0	Neilburg	0	10	0
Gladmar	27.8	30	0	Lashburn	0	6.67	0
Estevan	270	96.7	2	Maidstone	0	10	0
Redvers	666	90	0				
Broadview	258	83.3	0	NBattleford	0.1	3.57	0
Weyburn	619	80	6	Speers	0	13.3	0
Indian Head	949	100	0				
Melville	243	76.7	0	Middle Lake	0	50	0
Preeceville	7.5	30	1	Wakaw	0.2	6.67	0
Norquay	112	63.3	0	Duck Lake	0.3	16.7	0
Churchbridge	1350	96.7	0	Debden	0	6.67	0
Marengo	0	6.7	0	Star City	0.1	16.7	0
Lemsford	0.1	0	0	Rose Valley	29.8	0	0
Fiske	0	0	0	Arborfield	0	0	0
Coleville	0	3.3	0	Humbolt	0	0	0

Table 3. Alfalfa weevil and parasitic wasp *Bathyplectes curculionis* levels in alfalfa fields across Saskatchewan, 2012.

Location	Alfalfa weevils/ 10 sweeps	% stems damaged	<i>Bathypl-ectes</i> /field	Location	Alfalfa weevils/ 10sweeps	% stems damaged	<i>Bathypl-ectes</i> /field
Shaunavon	4.8	3	0	Vanscoy	2.89	0	0
Vidora	2.7	33	1	Conquest	9.10	0	0
Maple Creek	73.0	83	0	Outlook	53.9	0	0
Swift Current	156	50	5				
Moose Jaw	994	100	0				
Craik	199	57	1	Stalwart	33.6	67	0
La Fleche	603	80	0	Young	595	100	0
Ft Qu'Appelle	720	100	0	Cutknife	0.20	30	0
Coronach	118	83	0	Neilburg	0	83	0
				Lashburn	0	60	0
Gladmar	234	97	0	Maidstone	0.30	90	0
Estevan	246	100	3				
Estevan2	596	100	5				
Redvers	324	100	2	NBattleford	0	23	0
Broadview	202	100	0	Speers	0	47	0
Weyburn	609	100	2				
Indian Head	245	100	0	Middle Lake	30	53	1
Melville	1177	100	0	Wakaw	0.20	10	0
Preeceville	106	97	0	Duck Lake	1.0	23	0
Norquay	896	100	1	Debden	0.10	7	1
Churchbridge	830	100	0	Star City	8.8	0	0
Marengo	0	0	0	Rose Valley	39.8	7	0
Lemsford	0.70	0	0	Arborfield			
Fiske	0.20	0	0	Humbolt	105	83	0
Coleville	0.30	0	0				

Table 4. Insect pest species occurring in the greatest numbers in surveys of alfalfa fields across Saskatchewan 2010-2012. APB=alfalfa plant bug, SA aphid=spotted alfalfa aphid

Location	Pest	2010	2011	2012	Location	Pest	2010	2011	2012	No./10 sweeps
		No./10 sweeps	No./10 sweeps	No./10 sweeps			No./10 sweeps	No./10 sweeps		
Shaunavon	Lygus	7.8	Pea aphid 37.8	Lygus 64.8	Saskatoon	Lygus	13.0	Pea aphid 115.2		
Vidora	Lygus	10.5	Pea aphid 36.2	Lygus 72.2	Outlook					Alf weevil 53.9
Maple Creek	Grasshopper	11.5	APB 64.2	APB 206	Asquith	Lygus	6.0	Pea aphid 150.5		Leafhopper 8.75
Swift Current	Grasshopper	7.0	Pea aphid 223	Alf weevil 156	Conquest	Lygus	9.0	Pea aphid 90.8		Leafhopper 12.8
Moose Jaw	Alf weevil	52.9	Alf weevil 314	Alf weevil 995	Elbow	APB	87.5			
Craik				Alf weevil 199	Davidson	Leafhopper	18.3	Pea aphid 219.8		
Chamberlain	APB	51.0	Alf weevil 180		Nokomis	Lygus	47.8	Pea aphid 197.0		
LaFleche	Lygus	8.0	Pea aphid 46.5	Alf weevil 603	Marengo	APB	83.0	Lygus 65.5		Lygus 109
FtQu'Appelle				Alf weevil 720	Lemsford	APB	13.8	Pea aphid 73.8		Lygus 247
Mortlach	Alf weevil	56.0	Alf weevil 131		Fiske	APB	40.3	APB 258.8		Lygus 90.8
Coronach	APB	42.0	Pea aphid 71.5	Alf weevil 1177	Coleville	APB	90.0	Lygus 79.8		Lygus 58.5
Bengough	Lygus	15.5			Maidstone	Lygus	1.8	Pea aphid 497.0		Leafhopper 41.0
Stalwart	Lygus	12.5	Lygus 23.2	Alf weevil 33.6	Cut Knife	Lygus	3.6	Pea aphid 137.5		Lygus 15.0
Raymore	Lygus	17.0	Alf weevil 59.3		Neilburg	APB	1.3	Pea aphid 101.0		Leafhopper 48.2

												er	
Young					Alf weevil	595	Lashburn	<i>Chlamydatu</i> <i>s</i>	1.7	Pea aphid	641.2	Leafhopp er	9.50
Gladmar	APB	10.3	APB	79.8	Alf weevil	234	Edam	Lygus	2.8				
Estevan	Sitona	14.5	Alf weevil	270	Alf weevil	246	N. Battleford	Lygus	6.5	Pea aphid	497.0	Lygus	52.5
Estevan2					Alf weevil	596	Speers	Lygus	13.1	SA aphid	65.2	Lygus	29.8
Redvers	Alf weevil	11.1	Alf weevil	666	Alf weevil	324	Borden	Pea aphids	4.1				
Cupar	Alf weevil	62.9					Debden	Leafhopper	24.0	Pea aphid	151.2	Pea aphid	97.5
Broadview			Pea aphid	56.8	Alf weevil	202	Middle Lake	Lygus	9.3	Pea aphid	167.8	Lygus	60.0
Weyburn	APB	41.5	Alf weevil	619	Alf weevil	609	Duck Lake	Leafhopper	57.8	Pea aphid	147.0	Pea aphid	73.2
Indian Head	APB	32.0	Alf weevil	949	Alf weevil	245	Fish Creek	Lygus	16.1	Pea aphid	77.8	Leafhopp er	22.0
Melville	APB	10.5	Alf weevil	243	Alf weevil	1177	Star City	APB	50.8	Pea aphid	58.0	Alf weevil	8.75
Preeceville	Pea aphid	23.5	Leafhopp er	97.5	Alf weevil	106	Rose Valley	APB	41.8	Pea aphid	37.0	Alf weevil	39.8
Norquay	<i>Chlamydat</i> <i>us</i>	34.3	Alf weevil	112	Alf weevil	896	Arborfield	APB	91.8	Pea aphid	77.5		
Churchbrid ge	Alf weevil	10.2	Alf weevil	1348	Alf weevil	830	Humbolt	Lygus	16.3	Alf weevil	24.0	Alf weevil	105

Table 5. Alfalfa blotch leafminer presence in alfalfa fields across Saskatchewan, 2010-2012
(number of mined or stippled leaflets per 10 stems in 2010 and per 30 stems in 2011 and 2012).

				<i>Alfalfa blotch leafminer</i>			
	2010	2011	2012		2010	2011	2012
Shaunavon	0	1	?	Saskatoon	.	3	.
Vidora	0	5	0	Asquith	.	7	19
Maple Creek	0	5	0	Conquest	0	6	6
Swift Current	1	2	0p	Outlook	.	.	2
Moose Jaw	5	14	15	Elbow	1	2	.
Chamberlain	7	8	.	Davidson	0	7	.
Craik	.	.	14	Nokomis	2	8	.
LaFleche	1	1	9	Marengo	0	4	2
Mortlach	2	6	.	Lemsford	0	1	1
Ft Qu'Appelle	.	.	11	Fiske	1	3	2
Coronach	1	1	10	Coleville	1	0	3
Bengough	0	.	.	Maidstone	.	17	25
Stalwart	0	14	26	Cut Knife	.	5	9
Raymore	1	22		Neilburg	.	7	14
Young	.	.	29	Lashburn	.	14	27
Gladmar	0	1*	?	Edam	.	.	.
Estevan	0	.	?	N. Battleford	.	0	16
Estevan2	.	.	p	Speers	1	0	30
Redvers	0	.	p	Borden	.	.	.
Cupar	1	.	.	Debden	0	0	8
Broadview	.	.	p	Middle Lake	0	0	6
Weyburn	2	1*	p	Duck Lake	0	0	4
Indian Head	0	0*	p	Fish Creek	.	0	0
Melville	0	12	15	Star City	.	4	1
Preeceville	1	10	13	Rose Valley	.	4	3
Norquay	0	20	24	Arborfield	0	1	.
Churchbridge	.	25	12	Humbolt	0	0	12