Manitoba Forage Insurance Review

2020

Completed by Mike Lesiuk

ABSTRACT

To better understand Manitoba forage producers' risk management behaviour and their insurance purchasing decisions and to identify how the insurance program can evolve to support growth of Manitoba's livestock sector.

MANITOBA FORAGE INSURANCE REVIEW 2020

Table of Contents

EXECUTIVE SUMMARY

Insurance is a means to transfer risk from one party to another. It provides peace of mind and confidence that costs for losses will be covered, and that cash flow will be protected in the event of an uncontrollable risk.

Compared to crop producers, a low proportion of forage producers purchase production insurance, and by default, retain the risk. This review seeks to understand forage producers' behaviour in the absence of insurance, and their perception of insurance, as well as identifying how Manitoba's insurance program can evolve to be more effective and grow the industry. The findings are based on comments from producers, associations, and stakeholder organizations.

Producers' Behaviour in the Absence of Insurance

A fundamental difference between crops and forages is that with crops, producers are insuring a revenue source and have no on-farm risk management options to replace lost revenue. Forage producers' risk is having a feed shortfall, and the loss they are concerned about is the cost of replacement feed. Forages are an input cost which producers seek to minimize. They undertake many on-farm risk-management practices, which include:

- Prevention – To reduce the risk of a shortfall occurring, there are a range of farming practices. Some maximize production by increasing intensity of inputs and growing higher volume annual forages, such as silage and greenfeed. Others, particularly in areas where there are vast marginal lands, maintain lower stocking rates and reduce financial risk by minimizing inputs.

- Mitigation – To reduce the impact of the risk once an event occurs, practices include:
  - Carrying over inventory of forages. Range was 10 to 50 per cent.
  - Adjust stocking rates and length of feeding based on current and anticipated productivity.
  - Alter between grazing and harvested forages, based on need and availability.
  - Find forages to harvest from other areas and adjust rations.
  - Adopt more aggressive culling of the cow herd.

- Recovery – Even with prevention and mitigation practices, once these are exhausted, there may still be a feed shortfall risk where producers are faced with having to purchase feed or sell livestock. As a last resort, some commercial livestock producers will sell livestock and restore when production conditions improve, often assisted by the livestock tax deferral program during widespread disasters. The demographics of the sector have many older producers that have built up equity and can self-insure for a period of time.

These actions come at a cost, whether opportunity or realized. Use of an effective insurance program can minimize that cost. The reasons producers do not insure their forages range from a conscious calculation of the cost and benefit of the program, to complete disregard of insurance. Often, producers deem the remaining risk as minimal and manageable, and they are willing to take the risk. Some have no aptitude to insure and may not be aware of the insurance benefits available. External factors influencing producer actions include the cultural and historical behaviour of self-managing the farm, trust (or lack thereof) in government programs, privacy of information and the impact of other programs.

Insurance Program Effectiveness

Producers' perception of the program ultimately comes down to the valuation of how well it performs in the event of a shortfall and the return on investment for the ongoing premium cost. Producers expect the program to provide meaningful coverage of replacement feed costs to be effective.

Both insured and uninsured producers raised issues that bring their valuation of the program down. The most prevalent issues with the largest impact are noted below:

Yield Coverage

There are three aspects to yield coverage issues raised:

1. The yield coverage offered to new insureds and producers that have a change in their forage field (due to age or mix of forage) is not aligned with a producer's expected yield until a producer builds up individual records. In the meantime, they have coverage based on an area average yield and the claim yield based on their individual yield.

   This is a serious problem for the above-average producer as they have a larger deductible, have less of their shortfall covered, and are over-charged for the premium. The opposite is the case for below-average producers. This occurs for the length of time it takes to get to fully individualized coverage (up to seven years). (See Analysis Topic 1).
2. The area average is perceived to be below the actual area average for the area, as the data may be biased to lower yields due to adverse selection associated with the above issue.
3. Coverage is too sensitive to disaster years, resulting in coverage below expected yields following disaster years, and too low for meaningful protection.

Price Coverage

The price provided was insufficient as the replacement price for forages was much higher in the last two years. This issue exists because coverage is based on historical prices and even with the Hay Disaster Benefit, the insured prices are still below the market prices (see Analysis Topic 2).

Participant Burden

The amount of information and intervention with the farm operation is deemed excessive, complicated, and onerous. This was raised as a major factor for producers, particularly when they want to focus on their livestock and forage production demands.

Other issues related to the amount of coverage, gaps in coverage and timing of assistance are noted in the Findings Section - Table 1.

Alternative Products

The most common method used to insure forages in jurisdictions around the world, and in most Canadian provinces, is the index-based insurance approach. This method relies on weather or satellite-based technology to measure an endogenous factor that correlates with actual production. This avoids obtaining on-farm physical production information, and in turn, avoids participant burden. While producers were just introduced to this approach during the review, they showed a great deal of interest in its potential and would like MASC to explore its efficacy for Manitoba. There is currently an opportunity for MASC to test the product in Manitoba, as Airbus Corp is offering them a satellite pilot project.

Potential Demand

There is potential for growth in terms of acres and percentage of participation. The trend of tame hay being replaced by corn silage and greenfeed will likely result in an increase in *annual forage* acres enrolled in insurance and reduced tame hay acres. Given the higher yield and higher propensity to insure annuals, this should result in an overall increase in forage production being insured.

Increasing demand for forage shortfall insurance will depend on the extent to which MASC's programs are adjusted to address the underlying issues, and then on effectiveness of their communications with the industry. Addressing the yield coverage issue is critical to attract new participants to the program. Improving the insured price will make the program more effective for insureds but may not attract many new participants on its own. Addressing the participant burden will increase satisfaction. However, impact on participation will be minimal, unless it is greatly reduced.

It is also evident that there is a low level of understanding of the programs and that perception of the program improves when it is better understood. MASC could benefit by leveraging industry stakeholders to support program development and communications.

If the insurance program is effective in covering the shortfall, the participation requirements are *easy*, and the program provides equal opportunity for a positive return, there is no rational reason to limit demand. However, the analysis of sectors' aptitude to use insurance and the national average imply that there may be a built-in upper limit in the propensity to insure forages. Considering that limit, a changing demographic, and an indication that more producers would be willing to insure if their issues are fully addressed, a target of 30 to 40 per cent of insured tame hay acres appears reasonable.

If the satellite index approach is successfully pursued, it has the potential to be transformational and greatly increase forage insurance participation by reaching producers that wouldn't otherwise consider insurance and by adding pasture or hay acres for producers that insure some, but not all forage land.

Conclusion

Producers said if they had complete confidence that their insurance program covered their forage risk, they would invest more in their forages and hold onto or expand their herds. As such, the insurance program is a key policy tool to help meet the provincial goal of growing the herd.

The measure of a successful program is how well it meets the objective of providing meaningful assistance, and participation rate is only one indicator. To achieve the maximum program effectiveness, a list of recommendations is provided in the next section.

RECOMMENDATIONS

The recommendations are intended to provide direction to MASC on areas that should be further explored. They are based on the issues that are most significant to the industry and the possible solutions are options for consideration. The list was derived from participants' suggestions, practices in other jurisdictions and some general observations. There are likely other options that may be preferable and those should be further explored by MASC.

Below is the list of recommendations for MASC's consideration.

1. MASC should conduct an internal assessment of how well positioned they are to apply a forage-livestock lens to their products and services. This could include a review of its competencies (at all levels), structure and practices.

Reason: This will address the perception and possible issue that MASC's expertise and competencies are inherently biased towards annual crop production risk and ensure that programs and processes align with the characteristics of the industry. Ensuring the organization is positioned well is key to considering the issues and in making decisions going forward.

2. Address the fundamental program problems for their current programs.

Yield

a) Yield coverage offered to new insureds and producers that have a change in their forage field (due to age or mix of forage).

The aspects to this issue that need to be addressed include:

- The time it takes to move to individualized coverage.

  Suggestion:

  - Providing more options that enable a new insured to receive coverage based on their individual experience, rather than the area average
  - Being more flexible in the source of information accepted to establish coverage and giving agents discretion to accept producer's information.
  - Establishing a management index for the producer and applying it sooner, based on a percentage of the individual's performance each year.

b) The inherent problems of using different sources of information in the claim year versus the coverage period (individual's production versus area yield).

Suggestion:

- If unable to apply individual yield immediately, explore ways to apply a consistent measure for determining coverage and claim year yield.
- An option is to apply the same proportion of area average and individual yield to the claim year and coverage and move the individual share up each year (See Analysis Item 1).
- Develop a yield recording system that producers can use before insuring their forages. In the meantime, offer area-based coverage.

c) Improve area average to reflect actual production levels.

Suggestion:

- Work with Manitoba Agriculture and Resource Development (ARD) to obtain a broader database of producer information.

d) Reduce sensitivity of declining coverage after disaster years - provide meaningful coverage on an ongoing basis.

Suggestion:

- Cushion the impact of a disaster year by limiting downward and upward changes to yields or limiting only downward yields and applying a minimal increase for the pool of insureds.

Prices

Address the issue that forage prices used for indemnities do not reflect the market prices of replacement forage.

Suggestion:

- Base insured prices on the current or projected market prices of the insured period, rather than using historic prices.
- It is recognized that a system of capturing prices would be required. MASC could pursue an arrangement with an organization (i.e. building on its arrangement with MFGA) that currently records prices. This practice is currently done in Saskatchewan with one of their producer associations.

Amount of Coverage

Address the concern about the gap between coverage and cost of replacing feed. If the first issues are fully addressed, then the remaining gap is the deductible, which will be at least 20 per cent of the feed replacement cost.

Suggestion:

- This can be addressed by adding higher coverage level options. The federal government will consider cost sharing above 80 per cent coverage. Anything above what the federal government will cost share is the responsibility of the province and producers. It is not clear how much demand there would be for higher coverage, given that premiums increase as the risk of loss increases. However, after multiple bad years, producers may have depleted reserves and be willing to consider it.

Coverage Stability

Address the issue that the program relies on forage categories that are restrictive, and coverage is sensitive when forages move between categories.

Suggestions:

- The solution is less apparent and would require a more technical assessment of the issue and investigation of the options. Suggestions include:
  - Develop a quality index that accounts for the actual quality of hay harvested and related values (prices).
  - Smooth movements between categories to reflect what happens to production, rather than a complete categorization change in one year.
  - Recognize more forage types (legumes) in higher coverage categories.

Participant Burden

Address the issue that many producers find the program too onerous.

Suggestion:

- This requires a complete review of current processes and requirements of participants. It is suggested that MASC conduct a lean analysis to seek ways to be more flexible in what, when and how information is required. This needs to be done from the producer's lens.
- Specific suggestions that arose are:
  - Reduce detail required in reporting – accept production reports at field or farm level.
  - Review verification process to reduce client time and inconvenience.

3. Review, assess and prioritize all the other issues identified by participants (noted in Findings Table 1).

4. Review alternative insurance program approaches:

MASC should undertake an in-depth review of innovative approaches for satellite and weather index-based products to determine approaches most feasible in Manitoba.

Suggestion:

- MASC could research and implement a pilot project on the process that is most effective, which is likely the method that best minimizes basis risk. Conceptually, the satellite technology should be more accurate, as it reflects actual production and is not limited to the weather factors that other approaches measure. The Airbus Corp pilot project is an opportunity that MASC should consider.

The value of the simplicity needs to be assessed against the accuracy in determining individual impacts, as well as the value of attracting more participants that currently will not insure because of the inherent issues with the yield-based approach.

The review should include consultation to gauge receptiveness, and to understand the program design and implementation challenges and opportunities.

5. Leverage Partnerships

Leverage partnerships with industry to improve understanding of sector needs and responsiveness, and to build trust and confidence with the sector, to enhance resources and to advocate for use of the program.

Suggestion:

- Develop a livestock forage insurance team – create a team that is dedicated to improving the effectiveness of forage insurance. Members would include industry association reps, MARD livestock staff and some producer ambassadors.
- Leverage the financial community – Lenders, accountants and financial advisors all have significant influence on producers' financial decisions. They indicated they would welcome engagement to obtain program information and examples of how the program has helped address risk, and if done effectively, they will include it in their discussions with clients.

PROJECT CONTEXT

BACKGROUND

In February 2020, MASC commissioned this review with the mandate to determine why participation rates for forage insurance products are relatively low, compared to crop insurance (see Appendix A for the scope of the review).

On February 4, 2020, the minister publicly announced the review, stating the review will ask forage producers for their perceptions about insurance products, how they currently manage risks, and how the program can evolve to support growth in Manitoba's livestock sector.

MASC has reviewed its forage insurance programs on numerous occasions and made attempts to improve participation with sporadic success. Most recently, MASC undertook a review in 2012, which led to a redesigned suite of forage insurance products. With a coordinated sales effort, there was initially an increase in uptake. However, it was not sustained, and levels appear to be declining.

ISSUE STATEMENT

Manitoba's livestock industry, which annually provides close to $900 million of farm cash receipts to the provincial economy, relies on the forages from almost six million acres in the province.

Forages are vulnerable to extreme weather events, such as drought, untimely precipitation, frost, winterkill and floods. This causes volatile production levels and potential threats to a livestock producer's feed supply and their farm's financial stability.

In the past two years, Manitoba's forage regions faced severe weather problems that reduced the forage availability for the livestock producers. A shortfall in feed forces producers to either purchase alternative feeds or reduce their herds, both of which come at a significant cost.

When feed becomes unaffordable, producers are faced with no other alternative than reducing their livestock numbers. Reducing the herd is not in the producer's or the province's interest, as this sets back the economic stability and growth for the farm family, the community, and the province.

The federal and provincial governments provide subsidized insurance programs designed and administered by MASC, to help Manitoba's producers manage and recover from the forage production risks. MASC provides a comprehensive suite of programs, designed with the intent of addressing any shortfalls that have occurred.

Despite these efforts, the uptake of the forage insurance program has been relatively low, and as such, the intended assistance is not getting to all the producers that could use the help.

Many producers and their associations indicate that the insurance programs are ineffective in dealing with their issues. They have been pressing governments for additional ad-hoc assistance to help them deal with the issues.

Government seeks to understand why the insurance program is not used as extensively as its other crop insurance programs, and what can be done to improve its effectiveness.

Understanding producers' decisions, the perceptions of the program and the stakeholders' suggestions for improvements will help inform future policy and program design considerations.

PROJECT OBJECTIVES

The review seeks to obtain stakeholders' forage insurance experiences, perceptions and ideas, to provide context to the most critical issues raised, and ultimately, to provide recommendations on how the program may be improved to meet both industry and government objectives.

The areas reviewed are summarized under two components and segmented as follows:

1. Producer behaviour focus – understanding their behaviour and interests as it relates to insurance products.
    a. Risk and risk management practices – identify producer's perceptions of risks and how they manage them.
    b. Producer's decisions – identify factors that impact producers' decisions to purchase insurance.
    c. Trends – identify external factors that may affect forage insurance participation.
    d. Potential demand for insurance – provides context to help establish reasonable expectations for participation levels.

2. Insurance performance – understanding how well the program is working, program specific issues and ways the program can evolve.
    a. Expectations – identify the objective that producers want an insurance product to achieve for them and the key elements they consider.
    b. Program performance – identify the producers' perceptions of the effectiveness of the current programs and their major areas of concern.
    c. Program improvements – consider the options raised and identify possible solutions to address the issues raised and improve the program's effectiveness.

d. Jurisdictional review – identify insurance programs conducted in other jurisdictions and whether there are approaches or lessons learned that are applicable to Manitoba.

The findings are segmented into sections of the report that align with the above project objectives.

METHODOLOGY OF REVIEW

Consultation with industry stakeholders was conducted to gain insight into the areas relevant to the objectives of the review, and an analysis was conducted on key issues raised, where it was deemed helpful to illustrate the context or magnitude of the issue.

Consultations consisted of an online survey and questionnaire open to all producers, associations, and any stakeholder, using the Manitoba government's EngageMB portal (see Appendix B for survey approach and participation results).

Separate submissions were received from associations. Interviews were held with industry association management, Keystone Agricultural Producers, dairy and beef focus groups, and with individual producers in different areas of the province. Interviews were also conducted with MASC insurance agents, provincial agriculture specialists, lenders and financial advisors, Agriculture and Agri-Food Canada and other provincial insurers (see Appendix C for full list of all stakeholders consulted).

Note: Initially, in-person consultations were planned. However, due to the impact of the COVID-19 pandemic and social distancing, these meetings were cancelled and all consultations were conducted using videoconferencing and telephone.

The review included analysis, scans and data gathering, to illustrate and assess the most significant issues raised and to build support for suggested solutions. The results are included in the respective appendices and throughout the report.

SCOPE

The review focuses on the insurability of forage production in Manitoba.

Forages were defined as annual or perennial crops grown for livestock feed by grazing or harvesting as a whole crop. This includes all forms of hay, pasture, silage and greenfeed.

Insurance products considered were production-related insurance products that are currently provided by MASC, and those available in other jurisdictions in Canada. Programs in other nations were identified and reviewed at a cursory level to determine if there were novel approaches with relevance to Manitoba. Other risk management programs, such as revenue or price insurance models or insurance purchasing forages, were out of scope and not considered in the insurance options.

The type of farms was inclusive of anyone that produced or used forages. While all types of farms and associations were invited to participate, the participation in the survey and interviews was exclusively by producers and associations representing producers that grew forages for livestock feed.

The geographic area included all forage production in agro-Manitoba.

FINDINGS

The following provides the results from the consultations that were conducted throughout the review, and analysis that was conducted to assess some of the points raised. It should be recognized that there are many points captured that have been taken at face value and have not been thoroughly assessed. Accordingly, further analysis to validate the extent of key points may be necessary.

FORAGE SECTOR PROFILE AND OVERVIEW

Manitoba produces some of the finest quality hay in the world, due in part to the long growing season, and minimal pest problems. It also has a vast amount of hayland in marginal areas not suitable for cereals. These areas produce lower quality hay suitable for feeding beef cattle and other ruminants at a low cost.

Most of the forage production in Manitoba is used for the grower's own livestock feed needs. A small proportion of hay is also produced for the export market and for local processors.

Forages used for livestock in Manitoba are predominantly grasses and legume hay, corn silage, greenfeed, and pastures from tame or native hay.

Manitoba has 1.5 million acres of tame hay, with an average yield of 1.6 tonnes per acre and 130,000 acres of silage yielding over 15 t/acre. There is 4.3 million acres of pastureland, of which 3.3 million is native land[1]. Native land is more concentrated around the lakes and park or forested areas of agro-Manitoba (see table in Figure 3).

The users of forages in the province are predominantly beef followed dairy, bison, horses, and sheep.

There are 5,739 beef producers with 410,000 cows (2019). Most of their forage production is a mix of annuals and tame hay for winter supply, along with native and tame hay pasture. Production is spread across the province, with the greatest concentration aligning with the concentration of native hayland.

[1] *Statistics Canada (2016 Census and 2019 Report)*

There are 285 dairy producers with 45,000 dairy cows. Forage production is predominantly high-quality feed from annuals and tame hayland, with very little pasture. The greatest numbers are relatively close to Winnipeg, with the greatest concentration in southeast Manitoba.

Livestock farmers face a high degree of uncertainty regarding the productivity of their forages due to weather conditions. Forages are vulnerable to extreme weather events, such as drought, untimely precipitation, frost, winterkill, and floods. This causes volatile production levels and potential threats to the financial stability of forage producers. In a recent survey done for Manitoba beef producers[2], 85 per cent of producers indicate that weather poses a significant risk to their operations, with 33 per cent indicating it is very harmful.

Current Manitoba participation in forage insurance by forage type (000's for 2019-20).

Forage Insurance Participation

	Corn	Greenfeed	Tame Hay	Pasture
Insured	107	68	271	159
Total	130	N/A	1,421	4,306
% Insured	82%	N/A	19%	4%

MASC reports that 5,140 producers with forage acres are involved in some form of crop insurance. Of those 5,140 producers, 46 per cent have never insured any forages, and the other 54 per cent either regularly (37 per cent) insure or sporadically (16 per cent) insure their forage fields.

UNDERSTANDING PRODUCERS DECISIONS

This section looks at the risk management decision producers make, factors that impact their insurance decisions, how their perception of the program impacts their decision, and changes occurring in the industry that may impact forage insurance.

PRODUCERS RISK MANAGEMENT DECISIONS

Understanding the underlying factors that impact producers' decisions to purchase forage insurance provides the foundation in determining the ability to impact decisions and the potential demand for the program.

There are numerous factors to consider when assessing a person's insurance purchasing decisions that are very individualized and often influenced by economic, social, and environmental factors. There will be a range of relevance across the spectrum of producers for each factor identified.

[2] *MBP - Economic Impact Survey 2019*

The decisions for a forage insurance program were categorized as follows, based on points raised in the survey and the interviews:

- risk levels and tolerance
- risk management alternatives - ability to manage risk (self-insure)
- insurance program effectiveness
- farm management practices
- culture
- expected return on investment and cash flow priorities
- program awareness and understanding
- participant burden
- supplementary benefits – credit linkages
- impacts of other risk management programs

These factors are not mutually exclusive. For example, return on investment may depend on how effective the program is for each producer. The level of understanding and independence or habit may all be connected. The drivers can also change over time by changes in weather risk, changes in demographics over time, or by program changes.

The interviews with participants enabled some of these factors to be expanded upon more than others and are evident by the findings below.

PERCEIVED RISK AND ABILITY TO MANAGE RISKS (SELF-INSURE)

Risk management defined – There are four components of risk management that were considered in discussions with producers:

- risk assessment – which determines the risk level and appropriate actions
- prevention – actions that prevent the risk from occurring
- mitigation – actions to reduce the impact of the risk event
- recovery – actions to restore the farm after the event

While formal risk management plans are not evident in producers' management practices, they intuitively consider risks and undertake actions that relate to the four components.

Producers assessed the risk to their forage needs and made plans based on their experience of production and their ability to get through difficult years.

1) Risk Assessment

Producers consistently defined the risk to their farm as having a shortfall of feed available to maintain their livestock, as opposed to having a shortfall of probable yield on the land. This is significant, as insurance is based on the latter.

Most producers indicated that the perils that cause concern are drought, followed by late spring frosts and excess precipitation during harvest (quality). In areas around lakes and terminal basins, the risks associated with flooding was the major concern.

The risk of a feed shortfall occurring varied by producer, based on their management practices, land locations, their capacity and feed alternatives available.

Producers that insured some of their forages, but not all forages, generally noted that their selections were based on their relative risk assessment for each type of forage. Almost all insured participants felt their financial risk related to the high input costs on forage establishment and silage was high. They were more likely to insure to protect their working capital that was drawn upon to produce the crop.

The financial impacts are the greater of the replacement cost for feed shortfall (volume times market price, plus transportation) and the input costs for the crop grown.

Input Cost Risk

Participants were much more concerned about crops with high input costs and were more inclined to insure them. The input costs of annual forages created more concern than for perennial forages and were a very low concern for forages grown on marginal land. This would be one of the factors explaining the difference in cereal crops vs. forages insurance participation.

Producers had a very different perceived risk and interest when it comes to insuring forages on marginal lands. Marginal lands are those in lower quality soils not suitable for annual cropping, or lands that may be adjacent to lakes, sloughs and forested areas, and are comprised of native or coarse hay.

Livestock farms were established in these areas as that is the only agricultural use of these lands, and livestock numbers are based on the forages available. Producers are more willing to adjust their stocking rates in these areas, based on the availability of feed.

The cost of owning and operating marginal lands is relatively low and producers look to minimize the cost on it. The land values are generally lower, and many producers indicate that they do not add any or very little inputs on these lands.

Producers indicated the reliance and expectations for a good yield on these lands is minimal. As well, they do not consider this a significant financial risk, therefore purchasing insurance to cover a yield shortfall is less likely to be a consideration.

Propensity to Insure

One of the distinctions between grain and forage insurance is that forage is an input for the farm, whereas for grain, it is replacing lost revenue. Being an input creates some challenges, such as the ability for an insurance program to replace what is truly lost – feed. Insurance helps with recovering the costs or a part of it, but some producers said they would rather prioritize their funds and efforts to produce or even buy feed, overpaying insurance premiums.

There was a range of aptitudes to use insurance as a farm management tool amongst the forage producers. Some producers are willing to insure any areas where they can cover the risk. Others indicate they are prepared to insure their farm sales, but not their feed, because it is an input for their farm. As an input, they want to minimize costs of inputs and they have alternatives if a problem arises.

It is difficult to quantify the extent to which propensity to insure an input versus crops, and whether to insure at all, is a factor in producers forage insurance decision. However, it should be recognized as a factor in understanding producers' decisions and in setting program expectations.

Many producers that insure their crops don't insure their forages (46 per cent), and those that do insure forages, don't insure all of them. These producers are not averse to using insurance. Their decisions are likely to be based on risk and effectiveness of the related insurance products.

2) Prevention

Many producers indicated that they practiced higher intensity management by growing more silage and greenfeed to get higher feed production from the land, or by applying more fertilizer, replacing stands frequently and rotating pastures, all of which provides more resilience to drought conditions. ARD livestock specialists indicate the adoption of annual forages to replace hay land is rapidly occurring and should be expected to continue.

Producers did indicate they were more likely to insure their corn silage to protect their investment inputs. This is supported by the relatively high participation of corn silage insurance (82 per cent).

The increase in annual forage crops and the propensity to insure them should increase demand for forage insurance by livestock producers.

3) Mitigation Practices

Producers are very resourceful in finding ways to manage a shortfall to reduce the need and cost for buying replacement forages. Generally, the producers indicate they will exhaust these options before purchasing replacement forages. The common management practices raised include:

- Producers indicated they will carry over inventory of 25 to 50 per cent of their harvested feed requirements each year and keep lower stocking rates on pasture to manage feed production problems. When they have this inventory available, they determine that their risk is low. The back-to-back years of production shortfalls depletes their carryover, consequently increasing their risk and interest in insurance.

- Producers will use alternative feeds of a different variety than they normally use and will adjust the rations based on feeds available.

- Producers will alter the use of their own forages as needed between grazing and supplementing pastures and adjust their stocking rates and length of pasture season depending on its availability and capacity. Pastures, harvested forages and annual crops or their straw will supplement each other, depending on the conditions.

- Producers also harvest feed from other lands available, such as slough hay, road allowances, wildlife management areas and Crown land temporary permits, and they will make arrangements with their neighbors for straw when suitable.

  Note: Some of these alternative feeds, such as straw, that were once considered waste and had no cost, have become less feasible as alternative use markets have been developed for them and the cost has risen dramatically, or they are simply not available for livestock producers.

- Producers will adjust the length of time they retain the market livestock from shortly after weaning to backgrounding and grassing. When threatened with being short of feed, producers will sell calves earlier to keep more feed for the cow herd.

- Reducing livestock numbers to align with lower feed availability was consistently a last resort for the producers interviewed. Producers will do more aggressive culling of the cow herd in challenging times of low feed production and availability.

  Some producers indicated if they are in a position of being short of feed, they would sell animals rather than relying on insurance, because they would need to make that decision in advance of being short of feed, whereas insurance would come after and may not be sufficient.

There is an important distinction between beef and dairy producers. Beef producers are more inclined to adjust their livestock numbers to align with feed availability, whereas dairy producers will do everything they can to obtain feed at a certain quality to maintain the number of cows needed to fulfill their quota.

4) Recovery

Recovery is the ability to restore the farm and continue operating after the risk event occurs.

Once the on-farm prevention and mitigation efforts have been exhausted, if a producer decides to purchase feed, they have a few sources of funds:

- credit
- savings (including AgriInvest)
- insurance (AgriInsurance)
- other programs (AgriStability)

The use of credit and savings provides immediate access to funds, allowing the producer to make timely purchasing decisions. Insurance and other programs serve to backstop credit, and to help the farmer recover the cost and restore financial stability to their farm.

The producer's decision to self-insure, rely on another program, or transfer the risk using insurance, is impacted by their capacity to self-insure and their confidence and the costs and benefits of insurance or other programs. Producers with greater capacity generally have a higher risk tolerance.

Risk Tolerance

For the review, risk tolerance is defined as the ability to experience a production shortfall, without jeopardizing the financial viability of the operator or the farm.

Participants commented that the beef industry might have a greater risk tolerance than other sectors, due to its demographics, size, and investment cost.

The beef industry is characterized as having a larger proportion of older producers who have been able to build up equity. They operate relatively smaller farms, requiring less investment. In addition, there are many producers that have the propensity to use minimal inputs and cut costs. Producers that meet these characteristics have the capacity to continue operating through difficult times, without transferring risk, more than producers that have large debt levels. Accordingly, they are less in need for assistance and can self-insure.

Proving this characterization was not within the scope of this study. However, there were results from some of the survey participants, who indicated that was their situation, and comments from others that this was their findings as well.

Newer producers are more likely to have higher investment costs associated with recent purchases of higher cost, less equity/more debt and will explore more advanced management practices. Their risk tolerance is lower and more likely in need of insurance to provide stability to their farm in the event of a production shortfall.

Dairy producers also have higher investment costs and a younger demographic with more debt, so they will likely have a lower risk tolerance. While their cost of production and market risk is reduced due to the supply management system, their forage production risk is not covered.

OTHER FACTORS IMPACT PRODUCERS DECISIONS

Culture – Habit and Independence

The values, attitudes and customs of the industry members need to be considered as well. While the sector has a wide range of individuals with varying inclinations, there are some predominant cultural characteristics that participants raised.

Participants noted that the beef industry is generally known for having a culture of independence and self-reliance. Producers pride themselves on being able to take care of business on their own and will do everything they can to deal with issues, without involving third parties for support. They generally do not want to be involved in programs that involve intervention and reporting on what they are doing on their farm. There can be a suspicion and mistrust of government, and as such, they will avoid participating in government programs.

A variety of industry stakeholders indicated that many of their beef producer contacts, particularly older producers in marginal areas, have no aptitude for carrying any type of insurance unless it's absolutely necessary, and insuring forages is not even a consideration for them. These producers rely on their other own risk management practices and financial capacity to manage risk. Some have ingrained the independence over their farming life and are unlikely to change their interest to insure.

However, it is important not to over generalize, as there is a broad swath of individuals involved in the industry. There are many producers that want to insure, as they may be more risk averse and see insurance as an important tool for them. Those producers that have carried forage insurance or carry crop insurance, may be most likely to continue and expand their interest in insuring forages.

This culture of the beef sector may also differ from the dairy sector, which operates in an interdependent environment with government and other agencies, cultivated by the supply management system. These producers have oversight by their association

derived by a government regulatory system and are used to recording and reporting a significant amount of production information.

Impacts of other Business Risk Management Programs

While forage insurance is the only program that will directly respond to forage production risk, the potential assistance provided by other programs in the event of a disaster have been raised as factoring into producers' decision making.

AgriRecovery – The governments provided assistance for forage shortfalls many times in the past, including most recently in 2008-09, 2010-11, 2011-12 and 2014-15. This assistance has helped producers in covering feed and transportation costs, which reduces the pressure to insure. While the Ministers of Agriculture have indicated that AgriRecovery will not be provided to cover losses that insurance will cover, there remains an expectation amongst some producers that government should provide assistance for disasters, as was done in the past. There is some skepticism that governments will hold that position if enough pressure is put upon them during a disaster, along with the hope that another ad-hoc assistance will be provided.

The low participation is used to support the argument that the program does not work and ad-hoc is needed.

Continuing the strong consistent message that AgriRecovery cannot cover insurable forage losses is essential to offset this impact on producer's decisions. There is a role for industry associations to assist in explaining this message to producers.

AgriStability - There are approximately 2,000 cattle producers in AgriStability, of which 1,000 have livestock sales over 50 per cent or their income. If a producer has a whole farm financial downturn, AgriStability may trigger assistance and cover some of the losses that forage insurance would cover.

AgriStability has provisions to avoid covering the insurable losses that crop insurance covers but does not do the same for forages. This is largely due to low participation, which in effect gives producers the choice of business risk management tools.

The impact of AgriStability on forage insurance is tempered by a general perception in the sector that the program is unbankable, and by program issues such as the reference margin limit. Nonetheless, the program has provided significant support to some producers.

Although AgriStability was not raised as a participation factor during the interviews, there still may be an influence.

AgriInvest – AgriInvest provides funds to supplement producers' savings, which improves their financial capacity. Cattle producers have average accounts of approximately $10,000. These funds can be used to help a producer purchase

replacement feed. The impact on participation is simply that it increases financial capacity, which puts the producer in a better position to recover from a shortfall. Similarly, it increases funds available to cash flow, which could be used to cover premiums.

Note: AgriStability and AgriInvest participation statistics are CONFIDENTIAL. Source ARD policy branch

Livestock tax deferral

The deferral allows producers to sell part of their breeding herd in a year when there are widespread forage production problems (too wet or drought), and purchase them back in the next year or when conditions improve, to avoid the tax implications. This eases the impact of selling animals to deal with a shortfall, which is one of the ways producers will self-insure.

Each BRM program provides meaningful assistance for their respective policy purposes. While insurance is the program designed to specifically address forage production losses, the benefits of the other BRM programs have some degree of overlap, potentially impacting a producer's decision to purchase forage insurance.

Influences by advisors and credit linkages

Lenders, accountants, and financial advisors all have significant influence on producers' financial decisions. Lenders currently require most of their crop producers to carry crop insurance to protect their revenue, the lender's operating credit, and the viability of the farm, but are not a requirement for forages. These parties indicated that forage insurance is not currently on their radar, mostly because they are not aware of how it works and how it can benefit their clients.

Carrying crop insurance is also a requirement for obtaining cash advances. Carrying livestock price insurance or AgriStability allows livestock producers to be eligible for livestock cash advances. These linkages are impactful on participation levels.

There are no such linkages for forages, as forages do not have their own cash advance. Forage insurance is not recognized for livestock advances, and lenders do not require carrying insurance for their livestock loans, as they rely on the livestock for security. Producers have indicated that linkages to cash advances would be appreciated and that they may be more inclined to participate in forage insurance rather than other programs if it were eligible.

AAFC was asked about including forages for cash advances and they indicated that it is a possibility that could be further pursued.

Perceptions of the program effectiveness

Once all the external factors are considered, the perception of the program is key to the producer's decision. The perceptions developed from a variety of sources, whether accurately informed or not, have a major influence on the confidence in the program.

Confidence that the program will address the impacts of the risk is a fundamental requirement for the program to be considered.

The lack of confidence in the Manitoba Forage Insurance Program was evident and should be considered a major factor. This perception impacts producers' decisions to even consider purchasing insurance and passes on throughout the industry. The most common concerns heard are that the coverage is too low and that the program does not pay enough to make a difference. Therefore, the program does not work and is not worth it.

There was support for the program from some producers, who indicated that it had provided meaningful assistance, and some that wished they had taken coverage after finding out more about it.

It is difficult to gauge the extent of each perception for the complete sector. The survey indicated that approximately half of those that responded would consider the program if changes were made to it, which implies that they feel it does not work now. In addition, those producers that do participate in some insurance indicated that they would consider adding insurance onto other forages on their farm if their issues were addressed.

Some comments that reflect producers' negative perception are:

- Coverage is based on production by low producing managers and is not reflective of their farm.
- Dairy producers indicated that the forage program does not work for dairy because it was designed with only beef producers in mind.
- MASC is focused on grain production and forages are an afterthought.

It should be noted that insured producers were less critical of the program, but still had some major program concerns that need to be addressed.

Some of the perception is rational and based on actual experience in the program and legitimate concerns. Others are based on experiences that may have happened many years ago that have since changed, and some from other agriculture government programs that left a bad impression.

Improving perception of the program amongst all stakeholders is crucial to improving participation.

The individual program issues and possible improvements are outlined in the next section of this report.

Expected Return on Investment (ROI)

An often-heard comment from producers that do not participate is that they look at all their expenses and prioritize their limited cash flow to those things that provide the best return. One example is that some producers will buy fertilizer instead of insurance because of the ROI.

Given that the full cost of insurance is calculated to be approximately breakeven for the pool of participants over time, the 60 per cent subsidy provide by government results in a positive return for producers of $1 for every 40 cents invested, or a 250 per cent return for the pool. While this is not guaranteed individually, this should be a major incentive for producers that are looking for a return on their insurance investment, as long as the program coverage is calculated properly for all participants.

Some producers looking for a positive return participate with the expectation that they will receive a share of that return over time. Many producers do not know about the premium subsidy or understand how it relates to their return over time.

While overall the program provides a positive ROI, there is an ROI problem when the coverage provided is not aligned with a producer's individual yield.

When the area average is applied to determine an individual producer's coverage, the probability of losses will be less for a producer that normally has higher than average production than for a producer that has lower than average production. In effect, the producer with higher production has a higher deductible. Since they both pay the same premium and have the same actual shortfall in forage production, the lower than average producer receives a greater indemnity, and that producer's ROI is greater than the other (see Supplementary Analysis Section – Topic 1).

Producers have indicated that the low ROI they receive due to inequitable coverage is a major reason for not participating.

While everyone interviewed understands ROI and indicated it is a major consideration for them, very few were aware of the subsidy or how it factors into ROI. After explaining the ROI built into the program to producers and with lenders, they felt participation in the program should be a no-brainer from an ROI perspective, if it each producer is equitably treated.

Increase the understanding that the government investment provides a 250 per cent ROI for the industry to gain producer interest in the program.

Understanding of the program

Awareness and understanding of the programs and the benefits was raised as a significant issue affecting program participation. This issue alone impacts participation. Some participants indicated that they just recently looked into the program, met with the MASC agent and based on what they learned, they would purchase forage insurance this year. For them, the only factor that impacted their decision was awareness.

There was broad consensus that there is a poor understanding of the programs by producers, associations, and financial advisors. Even those that are involved in the programs admitted that they found parts confusing and did not really understand how the programs worked.

Awareness of the different product options available was low. There was very little understanding of the pasture programs. Many did not understand the ability to develop individual yield coverage and misunderstanding of how grazed forage lands are treated. Producers did have a better understanding of forage restoration.

An underlying reason for the low understanding is the sheer number of options available and the complexity in the programs. MASC's programs provide many options that cover producer's preferences and forage types, has detailed categories of forages, and is highly regulated in reported requirements to maintain integrity.

As most producers are generally inclined to focus their time and efforts on production and marketing rather than take the time to learn about insurance, an alternative strategy is required to improve understanding.

While MASC has a significant communication campaign, it should be reviewed as to its effectiveness in improving awareness and understanding.

Participant Burden

The level of burden on the producer has a major impact on participation. Factors that determine the burden include:

- complexity of the program and the ease in understanding the requirements on the participants to comply
- time and difficulty to comply with the application, reporting and claim processes
- the amount of intervention by the insurer

Producers indicated that the programs offered have a high level of participant burden, particularly in understanding all the rules associated with changes in use of forages and in reporting. Reporting requirements were the single biggest administrative issue that producers would like to see simplified. Issues raised included the timing of reporting conflicting with production activities, charges for change of use assessments, and penalties for missing deadlines.

Producers understood the reason for the information but would like to see it streamlined to better align with how they farm.

A much leaner approach for obtaining the required information that aligns with the farming practices and schedule is needed to improve the participant burden.

Summary of factors impacting producers' decisions:

Producer's risk assessment and risk management practices

Producers assess their risk and determine their options and type of risk management response.

Participants define forage production risk as being short of forage available to feed their livestock**,** as opposed to having a shortfall of probable yield on the land. This is significant as insurance is based on the latter.

Producers were more inclined to insure only if they deemed their risk high, which was for their high-risk crops, or when their risk for a feed shortfall increased, or for those that are highly leveraged. Otherwise, they were less likely to consider insurance. High-risk crops were defined by input level and past production volatility. They were more inclined to insure annuals that have high inputs.

Many producers noted that forages are an input on their farm, and they are less likely to insure an input. They look at ways to minimize input costs and seek low cost alternatives to cover the risk.

Producers have many on-farm options and tools at their disposal to manage feed shortfall risk, such as stockpiling, variable stocking rates, diversifying crops and adjusting in-year production decisions.

Some feel that their tools are sufficient for risk management. However, these have limitations and come at a cost.

Even after employing the on-farm tools, a shortfall may still occur and there is a place for insurance. The impact of other risk management programs or the producer's ability to self-insure is also considered.

Culture

Many participants noted that the culture of many in the beef industry is one of independence and self-reliance, and it is very difficult to generate their interest to participate in a program. Their focus is on production and they generally do not want to invest time or money into transferring risk by paying for insurance when they can invest directly into their farm instead. As the demographics of the sector has many established producers with built up equity, they are more able to self-manage their recovery if needed.

Third party Influencers

The advice provided by influential parties, such as creditors, financial advisors, extension staff, and industry associations, can have a major impact, particularly as many producers are inclined to rely on these parties to do the analysis on financial matters, rather than spend the time themselves. In addition, the supplementary benefits to carrying insurance, such as the ability to obtain credit, can be very impactful.

Perception of insurance programs offered

Program perception impacts producers' decisions whether to consider purchasing insurance. The factors affecting perceptions that were raised are their understanding of the insurance programs, their perspective of the program's effectiveness, and the participant burden.

A general lack of confidence in the program to effectively respond was evident. There is general perception that the coverage is too low, particularly for higher yielding producers and that the program does not pay enough to make a difference. There is a perception that the reporting requirements are significant.

There was positive support for the program from producers who indicated they received meaningful assistance, and from some producers, once they had a better understanding of how it works.

Producers and their advisors stated that their expected return on investment was a critical decision factor. Producers who did not participate felt the ROI was negative and would not consider participating unless that changed.

CHANGES OCCURRING IN THE INDUSTRY THAT IMPACT FORAGE INSURANCE

The industry is constantly evolving due to many external and internal forces. These changes impact the demand for insurance today and in the future. Industry experts, MASC agents and producer associations identified the changes that are occurring on the landscape that impact forage insurance.

Changes to the landscape and producers' decisions

Demographics - The demographics are changing as older farmers exit the industry and fewer new entrants are replacing them. Consequently, farm sizes are increasing. The new entrants tend to have higher investment costs and seek forage crops that provide a higher return from the land. Newer entrants will also be more inclined to expect and accept higher technology solutions.

Shift to more corn silage for forage - As producers seek to increase the production volume from expensive land, the definition of forages and the landscape are changing. Producers are growing more annual crops, such as corn silage and greenfeed, for their forage needs. The development of corn varieties that are viable in Manitoba's climate has had a big impact on producers' planting decisions. Every producer interviewed now produces some corn silage. One industry leader indicated the only thing holding back more corn silage production is the availability of harvesters. Producers are also increasing the intensity of input in their perennial forages with higher fertility and more frequent rotations.

Novel crops - The industry is exploring alternative forages such as polycrops or forage cocktails to improve soil health and environmental outcomes and enhance livestock nutrients. While this is minimal today, industry associations are anticipating it to grow and would like to see it supported through insurance.

Improved pasture – This has increased primarily with semi-retired beef farmers renting their land as improved pasture, rather than switching to grain, or selling. Some tame hay is switching to tame pastures when farms sell.

Climate Change - The impacts predicted for climate change have been experienced as producers have had severe losses in back-to-back years and volatility of drought and floods within the same year. This increases the risks on forages grown and will impact their cropping decisions as they seek to minimize their losses and increase the need for insurance.

Changes to insurance products

Technological advances are occurring in all areas. Big data, satellite imagery, and the development of mobile applications have significant potential for the agriculture industry, including insurers.

Satellite imagery has become more effective and viable for insurers. The ability to obtain granular information via satellite imagery and to use big data to determine field results that correlate with field level results has significant potential for insurance programs, particularly since it requires minimal intervention with the insured. It is currently being used in various countries around the world and in other provinces for forage insurance.

Mobile applications and apps have become mainstream and are applicable for people of all ages. They can now be developed for virtually any transactional activity that can be imagined, at relatively low cost. Apps have the potential to improve communication with clients, helping them make decisions and to streamline reporting, transactional activity, and claims.

Below is the full list of changes identified.

TABLE 1 - CHANGES OCCURRING AND HOW IT MAY IMPACT FUTURE OF FORAGE INSURANCE

Production: Move to annuals and higher inputs on hay	Many producers are moving to higher productive feeds. Use of annual crops provides greater assurance of feed in dry years and higher volumes. Adoption of corn silage on former tame hay land is rapidly occurring, as it provides higher yields and is more resilient in dry conditions. There is also increased use of oats, barley, and peas for greenfeed. Some producers are also increasing fertilizer use on hay fields to get more value from the land.
	Land values are increasing and there are changes in machinery used. Producers are pursuing higher value alternatives to create a positive return off the land, given the high land cost.
	Producers indicate they are more inclined to insure crops with high inputs.
Varieties, genetics, and agronomics	Corn genetics have improved to enable resilient crops to be grown in Manitoba. Perennial genetics have also improved, mostly on quality and not on yield and drought resistance. Producers have not taken full advantage of the improved perennial genetics, as many want to minimize costs of hay production.
Seed cost increasing	Cost of renovating fields is increasing. Producers are more inclined to insure for forage establishment to cover the higher risk.
In some marginal areas stands are getting older	Some producers are decreasing their inputs to reduce risk. Some producers are not re-seeding their fields as frequently to avoid incurring higher seed cost. This will reduce yields and coverage levels. The interest in purchasing insurance for this land is low.

TABLE 1 - CHANGES OCCURRING AND HOW IT MAY IMPACT FUTURE OF FORAGE INSURANCE

Crown land use changing	The number of unleased crown land parcels is increasing, and this may continue as producers exit the industry, consequently reducing the forage land in use.
Less pasture available	Shifts out of good pastureland to annuals where feasible.
Alternative forages	Producers are exploring alternative forage crops and multi-crop mixes (polycrops) that provide environmental and soil health improvements. These are currently used minimally, and mostly in experimental levels. A novel insurance is required to insure these crops, as they are currently not covered and there is no experience to use as a reference point.
Reduced options for low cost feed alternatives	Demand and value of crop residue (straw) and lower quality feeds have increased, making the alternatives available in times of shortfall less feasible.
Beef numbers are decreasing and so is demand for forages for feed	The beef production has been on a decline since 2006 from 680,000 cows to 420,000 in 2019. This reduces forage feed demand and acres needed for feed purposes (see Figure 2).
Retiring farmers increasing pastureland	As producers retire, we are seeing more improved pasture rented out, rather than switching to grain or selling. Some tame hay is switching to tame pastures when farms sell.
Demographics	Older beef producers with smaller operations are exiting the business, and younger producers are expanding cattle operations. Despite overall cow numbers dropping, individual herd size is increasing rapidly. Individual herds that are expanding are making use of corn silage, greenfeed, and more intensive alfalfa production, as they cannot afford to expand the land base with cow income but can expand feed supply with higher yields per acre.

TABLE 1 - CHANGES OCCURRING AND HOW IT MAY IMPACT FUTURE OF FORAGE INSURANCE

Climate change production risk variability	More floods, drought and extreme variability have been experienced recently and are expected to continue or worsen. This increases the risk, which should increase the interest in insurance. As forages are less resilient than other crops, producers are shifting to more annuals which producers are more inclined to insure.
Carbon Credits	If credit offsets are instituted, we may see more forage acres
Technology - Satellite Imagery	The use of technology and satellite imagery provides easier ways to record production performance with increasing accuracy. This has potential to reduce administrative requirements on participants and the insurance company and may result in a reduction of moral hazard.
Apps	New apps are being developed that allow timely and easier ways to report on performance and enhance communication. This has potential for reducing participant burden by simplifying how yields are measured, how reporting is conducted, and communicating the requirements in a timely manner.

POTENTIAL DEMAND FOR FORAGE INSURANCE

Predicting the potential change in demand for forage insurance requires consideration of the decision-making factors, the trends impacting insurance, and the effectiveness of any program changes made by MASC. Some of the most apparent factors are considered below:

Perceived risk changes

- On-farm risk management alternatives become less effective or too costly. The availability of inventory to cover a shortfall is no longer available due to lengthy periods of drought and other weather factors.

  Currently, this is the situation as the production problems of 2018 and 2019 have resulted in depleted carry-over inventories. As this risk will vary over time depending on the weather, so will its impact on demand.

- Increases to input costs will place more pressure to meet commitments or to maintain the financial position of the farm.

  Producers that are increasing the use of silage and greenfeed may increase their interest in insuring if the program is deemed effective.

  There are regional and demographic differences to consider as producers in areas of better soils zones, and expanding producers are more inclined to increase intensity, as opposed to producers in marginal lower quality areas or those that are scaling down.

Perception of insurance program would change if:

- Insurance is deemed to be more effective in covering risk, particularly by addressing the two main concerns raised:
  - Program probable yield coverage is more reflective of farmer's expected yield.
  - Insured values reflect market values for replacement feed.
- Participant burden is deemed to be minimal and aligned with client's aptitude to provide information, particularly by addressing:
  - the burden of reporting production each year
  - increasing the understandability of programs, either by simplifying program design or improving effectiveness of communication
- Producers deem that the premium investment provides a positive return. The perception of the return should improve by addressing the concern of adverse selection in the program.

The extent to which these three areas impact program demand is different for each producer, as they rate each one differently based on their own situation, and their propensity to insure or invest.

If the program is perceived to be providing good coverage and is not overly burdensome, producers who currently do not use the program because they have issues with it are likely to increase usage. If those issues are addressed and significant 250 per cent average ROI becomes well known and accepted, there is a potential to attract many producers that currently do not consider insurance, strictly because of their propensity to invest in opportunities that provide a relatively high return.

Factors such as demographic behavior and aptitude to insure can also impact the demand over the long term. Determining the magnitude of change that will occur in these areas is not quantified but should be noted as being increasingly receptive to use insurance.

The impact of linkages to other programs, third party influence and program promotion, should also be considered.

Expected level of participation

Participants were asked how much they think the program participation would change if all the program issues were adequately addressed. The estimates they provided are strictly their opinion and should be considered in that context. Their opinion is of value, as it reflects their knowledge of producers in their area and experiences in working with them on these and other related issues.

The interviews with insurance agents, industry associations, livestock specialists, and producers indicated a very conservative change that would occur for the overall sector, even if changes were made to address the program concerns. Participants feel the culture, the ability to self-insure, and farm management habits, have a larger influence on participation than the effectiveness of the program.

MASC agents estimated potential increases ranged from five to 20 per cent over current levels. The variance is a reflection of their knowledge of the behaviour of producers in their area. This translates to the potential participation on tame hay of 20 to 25 per cent. Note that the impact of an index-based insurance approach was not considered in their estimate.

ARD livestock staff also indicated very low expectation unless the perceptions in ROI are dramatically changed. Estimates ranged from no change to five per cent a year, eventually reaching 35 per cent and as much as 50 per cent if there could be an understanding of the potential ROI. They also noted that timing is crucial and the need to strike while the iron is hot, as producers are more inclined to insure this year because of low inventories. If there is good moisture and producers build inventories, opportunity to increase demand will evaporate. Note that the impact of an index-based insurance approach was not considered in their participation estimate.

Industry associations provided comments, rather than a quantitative estimate.

Manitoba Beef Producers Association indicated that there is potential for an increase. Producers may be willing to test the waters if the programs are more workable, along with a good sales pitch. Improving the understanding of COP and benefits of insurance is needed. They also indicated that timing has an impact and the past two drought years may increase interest.

Manitoba Bison Association indicated that when insurance premiums are more closely aligned to yield and product value, producer participation will grow rapidly.

Manitoba Forage and Grassland Association also indicated that interest in insurance should rise when producers understand the benefit of insurance for dealing with unpredictable climate impacts and that increasing knowledge is key.

At an individual level, producers indicated they were more open to make changes to their insurance purchasing behaviour. Some producers indicated they have or are planning to add insurance, as their understanding has recently improved. Many producers that were polled and those interviewed indicated that they would consider participating if their program issues were adequately addressed.

Further, when alternative insurance models were shown, there was a noticeable increase in interest to participate, particularly because the participant burden was reduced.

Producer focus groups – Beef producers felt the participation could reach 30 to 50 per cent if the index approach were offered. They felt reducing the burden and simplifying the program would attract new producers.

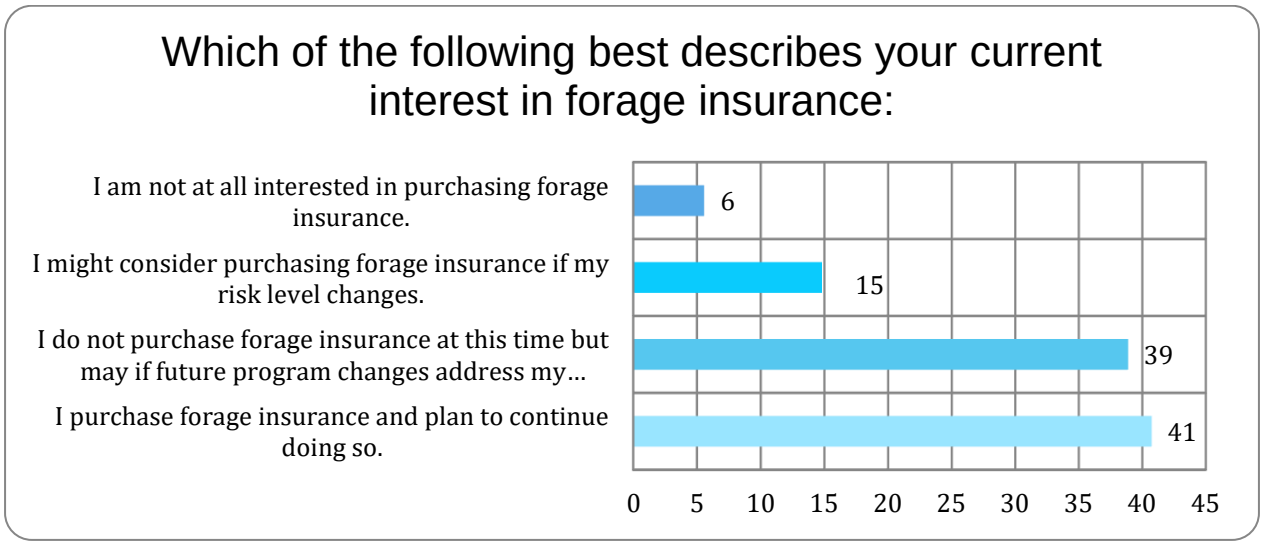
The dairy producers also felt there would be interest in the index approach. They also indicated that improving understanding and having a dairy specific package would help increase interest in their sector.

Of the producers that completed the quick poll on the portal (see Figure 1 below): Fifty-four producers completed the poll. Fifty-nine per cent of the producers currently do not participate in insurance. Ninety per cent of them indicated they would consider insurance under certain circumstances. From that group, 72 per cent of them indicated the program effectiveness, and the other 28 per cent indicated their risk level is driving their current decision and changes in those areas might change their interest. Sixty-five per cent of the producers not insured would consider purchasing insurance if the program were improved to address their concerns.

It is recognized that the respondents that participated are likely to have a greater interest in insurance than the general producer population, as producers that have no interest in insurance are less inclined to participate in the survey.

However, it is still useful to note that there is an interest to insure under certain circumstances, and that improvement to the program will have a meaningful impact on some producers.

Figure 1 - Quick Poll Results (percentage based on 54 respondents)



Other Jurisdictions

Relatively low participation in forage insurance is common in all provinces across Canada, except for Quebec. AAFC advises that most provinces are at around 20 per cent, while Quebec is at 50 to 60 per cent. Governments and the provincial insurance agencies have often discussed this issue at the FPT level.

A deeper assessment of participation by product type and forage use in other jurisdictions and what drives it was not part of this review but would be informative. Any comparison needs to consider the differences in demographics, geography, and forage profile. For example, Manitoba has more forage land in low-lying areas close to lakes and other basins that is subject to flooding than other prairie provinces.

During discussions with AFSC and SCIC, they noted that they are experiencing increases in forage insurance participation due to more uptake of the index-based programs.

Summary

There was consensus amongst participants interviewed that there is potential to increase producer participation in the forage program and the potential amount depends on the extent of efforts undertaken.

The amount of change estimated is purely speculative, based on producers and industry expert participants *gut feeling*. However, based on this, reasonable targets to consider are:

- Small tweaks to the program that do not address the fundamental issues will not change the perception of the program. However, gains can be made just from improving understanding of the current products. This may increase the potential demand by a marginal change (of 5 to 20 per cent of the current level over time) in the program, bringing the total tame hay acres covered to between 20 to 25 per cent.
- Making major improvements to the existing programs or offering innovative products that materially address the underlying issues and change producers' perception can have a much more significant impact on demand, estimated as high as 30 to 40 per cent of insurable tame hay acres.
- The impact on pasture insurance participation by offering an innovative product that is easy to understand and participate in may be significant. Predicting the amount is not of value at this time. However, using levels experience in Alberta and Saskatchewan would be reasonable.
- Participation may also increase at this time, as producers have lower risk management alternatives due to the recent drought years and may feel a greater need to carry insurance. It is also an opportune time to market forage insurance, as MASC can show how insurance can help producers dealing with these recent conditions.
- The market for insurance is likely limited to the portion of the industry that feels they have risk they can't manage themselves, and to those that feel there is an opportunity to make a positive return from investing in insurance. If there was widespread acceptance and confidence that the program provides a positive ROI of 250 per cent, with equal probability amongst insured, the maximum market would be all forage producers and the forecast would change to higher than 40 per cent.

EXPECTATIONS, ISSUES, AND IMPROVEMENTS FOR FORAGE INSURANCE

The previous section focused on the producers' risk management decisions. This section focuses on the Forage Insurance Program offered by MASC.

It includes:

- producers' expectation from an insurance program
- perceptions of the performance of the program
- the underlying issues that impact program effectiveness
- suggestions on how the issues can be addressed

EXPECTATIONS FOR INSURANCE

Identifying what producers expect from an insurance product will help understand what drives their assessment of the program's effectiveness.

Producers raised their personal priorities of what they want in an insurance program. Industry associations assess the program from a broader perspective that includes how it impacts producers and the growth and sustainability of the whole sector. While the priorities varied and were stated in various ways, there were general consistencies that arose.

The priorities were assessed and summarized to define the broad objective and key element criteria noted below.

The overall objective:

- Provide meaningful assistance to help producers manage the financial impact of forage production risks.

Contributing elements that comprise the criteria of the objective:

- responsive to all perils beyond the producer's control
- coverage reflects individual's productivity and productive capacity
- the amount of assistance reflects market values
- assistance should be predictable and bankable
- program is affordable and cost effective
- assistance is timely with operational activities
- the administrative burden on the producer is minimized (participant burden)
- program is equitable – producers with similar risks receive similar level of assistance
- program is competitive with competitor's programs

It should be noted that the objective and elements do not conflict, and in many ways, align with government's goals and principles. The challenge is to identify the best way to achieve them with the information and resources available.

Government and MASC also have insurance principles that are necessary for a program to be sustainable and effective. The insurance principles are attached in Appendix D.

The next part of the report provides further explanation of the objective and the general perception of the effectiveness of the current programs in meeting the producers' expectations. It then provides a listing of specific program issues raised.

Major problems or issues further delved into understanding the root cause, impact on program effectiveness and possible solutions. The insurance principles were considered throughout the discussions.

Meaningful Assistance

Producers indicated that the amount of assistance they want insurance to cover is the cost of replacement of the feed they were producing when they are short.

This is very different than for crops where they are insuring revenue and do not have to purchase replacement for the lost crop.

Livestock producers want forage insurance to cover the 'cost of replacement feed.'

The impact of a feed shortfall is the full amount they are faced with replacing, so they will measure the amount insurance provides to the cost of replacing the feed.

All the factors that impact the amount of assistance provided become significant in assessing the program.

There was recognition that a deductible is necessary for the program to be affordable and to meet government operational guidelines. However, it was still noted that the deductible leaves a gap and some producers will have difficulty finding other resources to address the gap.

For forage establishment, where producers do not have to purchase a crop, but need to reseed it, they indicated they want insurance to cover the cost for the inputs.

Perceptions of Program Effectiveness

Participants rated their perception of the programs and the follow up interviews delved into these further.

Product Type	Very Effective	Somewhat Effective	Not Effective
Select Hay	5	6	8
Basic Hay	4	4	9
Harvest Flood Option	1	4	9
Enhanced Quality Option	3	4	7
Pasture Insurance	1	4	9

The ratings of the effectiveness of products varied significantly and given the small sample size it would not be prudent to draw sector-wide conclusions just from this information. However, considering the survey and the comments in interview there are some patterns that started to emerge. Below are some of the general perceptions heard:

Forage Establishment Program - There is strong support for it and suggestions are for relatively minor changes that would be more inclusive to other farm practices.

Select Hay – Producers are supportive of this program for their tame hay, as it provides better coverage that is more understandable for their operation. There are some major issues in the programs coverage calculation that are identified in the issues section below.

Basic Hay – The coverage was deemed to be insufficient by many. Comments were that producers use it because it is cheap, and it allows producers to get the other insurance product benefits (presumably the Hay Disaster Benefit and Forage Restoration).

Enhanced Quality Option – Purpose and approach is appreciated, although the quality options are insufficient for high quality forage and there appears to be a low understanding of it.

Hay Disaster Benefit – The intention and approach were appreciated, although the amount provided recently was deemed insufficient to meet the intent.

Pasture – There were few comments about the pasture programs, mostly because producers either didn’t care to insure their pastures or because they didn’t understand the programs. There were a couple of comments that producers use the proxy because it is easy to use.

Corn Silage – Producers like the approach for corn silage, although there were concerns with coverage levels being insufficient, and there are some quality issues specific to the dairy sector.

Coarse Hay and Pasture - There was far less interest or understanding of how the insurance programs work for these forages. There was some suggestion that providing yield insurance on native hay is not a feasible approach for many producers as there is a low level of management intensity, that is they have low expectations from that land and it is very difficult to establish a normal yield or product.

It would be worthwhile for MASC to consider other approaches for insuring coarse hay and pasture that simplify the programs and reduce the amount of intervention with the client, while still providing effective coverage.

Some producers said there is a common perception that MASC is biased towards cereal crops and that forage programs are treated as an afterthought. There was concern that MASC does not have the same amount of interest or expertise in forages that they have for cereals and this shows in the programs and their communications.

It would be useful for MASC management to review how well positioned the organization is for insuring livestock producers by reviewing their organization's competencies at all levels, their structure, and their processes. Insuring forages produced for feed requires a different lens than for crops and it is important that MASC applies the appropriate lens when reviewing the program.

PROGRAM ISSUES AND POSSIBLE IMPROVEMENTS

The interviews and survey asked participants to identify program issues and ways they would like to see them addressed. There were many issues identified for each program, ranging from participation deal breakers to minor irritants.

The major issues were examined to determine the extent and relative impact where it was feasible to do so. This includes quantitative assessments or through verification with ARD industry experts. The major issues identified face all forage insurance providers. However, there was a difference in how some are being managed. The practices of other jurisdictions were also considered in developing the solution options.

The categories of issues and their significance are noted below, and a more detailed list of the issues raised is provided in the table that follows. The specific comments received from stakeholders provide more individual context to the issues and can be viewed in the attached stakeholder reports.

Types of Issues

There are two major common program coverage complaints that impact decisions and the image of the program that are recommended as *must address*:

- yield level used for determining level of coverage
- insured prices used for determining coverage and indemnities

Participants that do not purchase forage shortfall insurance raised yield and price coverage as their main reasons for not participating in the program. They would only consider getting into the program if both issues were adequately addressed. Producers in the program that have established an individual yield for coverage were generally satisfied but echoed the concern about the forage prices being insufficient.

'Many producers will not consider participating in the program because they deem the yield coverage is well below their historic production and the prices were well below replacement costs when the disasters hit. These two program elements must be addressed to improve the perception of the program and for insurance to appeal to these producers.'

These two issues were delved into further to identify why this is an issue and how it impacts program effectiveness *(see Analysis Items 1 and 2 for the analysis).*

Dairy producers raised quality coverage as a major issue. Their forage input intensity is much higher, and the corresponding production and quality expectations are as well. They indicate that the quality guarantees offered on hay crops are far too low for dairy and that the corn silage quality does not include some nutrients or quality problems that are critical to their feed requirements. Most dairy producers will not consider the hay insurance program as the perception of most, including the MASC agents, are that the programs were designed for beef producers and do not accommodate dairy needs.

Beef producer's quality concerns were in relation to the value the program puts on forage mixes, compared to their actual experience. They felt the program is too rigid in determining the composition of higher value forages, and that it underestimates the quality of their actual forage mix. Some also noted that the change in coverage was far too sensitive when the forage age or type changed from year to year.

The level of **participant burden** was raised as a significant issue with the 'reporting requirements' being very significant and having a big impact on participation and program satisfaction. There were issues raised that the stringent requirements to report and to wait for a yield assessment conflict with their farming practices and can even detract from their farming performance.

There were little to no concerns that premium levels are unaffordable. Premium level was an issue when producers felt their yield coverage was below their expected yields, in which case they felt the premium was not aligned with their risk. Some producers indicated they were willing to pay a little more if the coverage was improved.

It is apparent that options that reduce coverage to make premiums lower may attract producers to the program in the short-term but result in lower program effectiveness during problem years. It will also create negative perception of the program that can be long lasting and difficult to overcome.

Efforts to improve coverage and reduce participant burden are recommended, rather than offering options of low-cost premiums based on low coverage.

Specific Issues

There were numerous issues raised and solutions to the issues are a mix of generally desired outcomes and specific suggestions. In some cases, no solutions were evident. The issues raised have not all been validated or determined, whether they are systemic or circumstantial. Participants' responses were very thoughtful, and it is recommended MASC review all of them to confirm their validity, extent, and impact relative to the program outcomes, and then prioritized to determine an appropriate response. The comprehensive list of issues is provided in Table 2 below.

Table 2 - Program issues raised and possible solutions for consideration

	Issue	Problem	Solution
Perils	Tornado	Does not cover tornado losses to baled hay destroyed by tornado before being moved.	Include losses to baled hay that could not be removed from the field in reasonable time. Could become more prevalent with climate change.
	Fire	Fields may take more than a year to produce if destroyed by fire.	Provide coverage for subsequent years.
Yield Coverage	Yield coverage: getting to individual yields	Using area average does not reflect individual experience and is below a higher yielding producer's actuals.	Goal – Yield that is probable for the individual, is equitable in matching coverage to management and experience. Individualize sooner by: - Accepting reasonable production info for individual yields earlier – AgriStability, other 3rd party sources (benchmarks), individual's records if adequate and reasonable. - Create a tool for recording easier. Work with stakeholders to explore ways to gather better forage production information, such as benchmarking.
	Area average is based on insureds data only	Perception that participation is biased towards lower yielding farms so area average used is below the actual for the area.	Improve area average used - Develop better area info with sector stakeholders. Blend MASC and ARD data. MASC, ARD and other stakeholders develop a higher-level data system for capturing and reporting forage yields.
	Disaster year impact on yield coverage	Disaster years drive down coverage levels and decrease program effectiveness in covering a shortfall after disaster years.	Goal - Maintain a probable yield under normal conditions for coverage. Cushion impact by limiting drop, wipe out bad years or Olympic Average.

Yield	All production not captured	Hayland used for grazing in fall is not reported in harvested production.	Improve communication that it does get counted – simplify reporting process.
	Four-year age of stand differentiation	When stand moves from four to five years old, there is large impact on coverage that does not align with reality on the farm yield.	Consider gradual yield differentiation and move to individual's actuals.
	Coverage is too low for some categories and biased to alfalfa	Some forages produced contain higher yields and feed value than the program categories offer for coverage.	Recognize other legumes, their quality and yields. Provide quality index for forages. Use actual RFV, instead of a percentage of alfalfa.
	Pasture Days Gap – Pasture Shortfall gap	Does not cover seasonal shortfall if overall year is sufficient. Does not pay if hay crop doesn't have a claim.	Provide coverage for each month that are key pasture times. Provide index options.
	Hay shortfall	Value provided is insufficient for market price.	Base prices from current market values and offer options for in-year price levels.
Prices Used	Pasture proxy	Value used is well below what is needed for pasture replacement. Value is not an issue for Pasture days product.	Provide higher dollar value options.
	High valued products	Prices are insufficient for those with high quality feed needs and for higher valued niche markets (horse bales).	Ability to insure based on differentiated market prices.
	Basic Hay	Coverage values offered are insufficient for meaningful assistance, given market prices are much higher.	Offer third price option that is higher and based off current or forecast price.

	Hay Disaster Benefit	Price was too low for situation.	Use current market prices.
Price	Limited options	There is a wide range of forage quality levels that are not accounted for when determining coverage levels.	Use an index approach that accounts for RFV and any other significant quality factors. Have more categories within coarse hay. (review the others).
Eligibility for coverage	Eligible crops	Polycrops, all types of hay (some not covered separately in select).	Allow all types using proxy crop or an index chart on volume and RFV.
	Coarse Hay	Production is too sporadic and managed to allow for a measurable program.	Consider removing coarse hay coverage in shortfall programs – offer index.
	Uninsured land (lakes, basins)	Land that occasionally floods (or that floods in spring and then recedes) was not insurable but is often harvestable in August or September.	Wants coverage for years when this is not harvestable or reduced yields (this issue needs to be explored further).
	Forage Establishment	Requires field to be cultivated before seeding to have a clean seedbed.	Have flexibility to cover establishment of forages that were planted using intercropping methods that are supported by science (see comments in MB Bison submission).
Administrative – Participant Burden	Pasture Days	Far too much interaction and monitoring required with MASC if making a claim.	Simplify and reduce amount of intervention.
	Reporting of harvested production. (Hay shortfall programs)	Difficult to breakdown by quarter section as fields span and split across many quarters. Takes too much time and effort to record and report back.	Report by field and base the coverage and reporting on fields. Producer to provide the quarters that are included on the fields once and only adjust when fields change. SCIC – has minimal breakdown - report yield and number of acres by crop for all of farm and not broken down by field.

	Too much intervention in program for verification	Reporting and verification of production changes and levels is confusing, time consuming and intrusive.	Simplify means of reporting and reduce verification to a percentage of audits instead of all. Review extent of verification and penalties.
Timing	Timing of assessments	Having to wait for an assessment before being allowed to graze. Wildlife depredation occurs during that time.	Establish means on how to get information that works with production schedule.
	Timing of providing yield information	Claim information is required at end of September while producers are still in production mode. They may still be haying, working on fields, or harvesting annuals.	Explore necessity to provide information at that time and consider flexibility to align with production (Dec. or even Oct. 31, which is the date for other crops). Simplify the information that is required – take total production rather than production for each field.
	Timing of assistance	Producers normally do not receive assistance until all production is in, which may make it difficult to secure feed source. Also, would be an issue for pasture shortfall.	MASC has initiated an early payment process where they provide a percentage of estimated claim. Make this a known, formal part of the program and develop criteria for when it will be applied.

Other Individual issues and suggestions heard include:

- In determining coverage yield, do not include the producers yield for the year when hay shortfall is triggered.
- Develop an index system of hay quality to determine coverage level for the producer based on RFV of forages harvested.
- Shipping costs should be insurable for producers that buy feed, whether they grow the crop or not. A suggestion is to use shipping rebates, based on an adult animal unit, as recorded in annual farm income tax returns.
- Establish a broader outcome that is supportive of improving farm management for the records that are captured. IPI's inherently do that as producers can see how they compare and want to be in the upper range. This can be done by providing on-line info, in any easy to view format, of how the producer is doing relative to others.

- Forage Establishment – dairy producer indicated that the thresholds to reestablish are inadequate. He indicates that the program triggers when plants are at two plants/ ft^2 and he would re-seed if only 10-15 plants/ ft^2.

Marketing and communication suggestions to improve understanding and awareness:

- Provide separate packages for the dairy sector that speak to the dairy needs and show how the programs can work for them.
- Improve client service with more and easier tools to use, such as a chat line for questions.
- Allow production history online to build understanding of their farm's performance.
- Producers do not know their historic yields used to determine coverage. Create a user-friendly, on-line chart showing production history and build understanding of their farm's performance.
- Develop a plan to increase communication on changes made and how the program works to deliver to those producers that are not engaged with MASC.

Additional ways to improve program awareness and participation.

Develop a livestock forage insurance team – create a team that is dedicated to improving the effectiveness of forage insurance. Members would include industry association reps, ARD livestock staff, and some producer ambassadors.

The potential roles for industry work include:

- Resource for MASC in program development - assist in confirming priorities and identifying the impact of program features before finalizing them.
- Assist and be part of a communication strategy.
- Review effectiveness, identify gaps and solutions.
- Assist and potentially participate in forage research planning.
- Provide other services common to each organization (i.e. hay prices).

Note: SCIC has a working group model that has a similar function and they report that it has been very effective in ensuring the program is aligned with the producer clientele and has improved support of the program and their relationship with the associations.

Leverage financial community - Lenders, accountants and financial advisors all have significant influence on producers' financial decisions. These parties indicated that forage insurance is not currently on their radar, mostly because they are not aware of how it works and how it can benefit their clients. They also indicated that they would welcome and see benefit in being made aware of the benefits.

Extension events - A forum that explains the risk that forage producers face and how the insurance programs can help manage it is recommended. MASC should explore ways to do this with ARD.

Messages from industry associations – Associations can reach out to their members and may be more inclined to pay attention to, and accept information from, their associations.

Producer program ambassadors - Testimonials from actual producers supporting the programs can be very influential.

Communications – Messages need to be more meaningful to producers by showing how the program will benefit them rather than technical information.

Presentation at industry meetings – District meeting and beef days are opportune times for MASC to present. A short presentation would generate discussion and interest.

PROGRAM IMPROVEMENTS FOR CONSIDERATION

The list of issues and possible improvements identified by participants illustrates the volume and breadth of issues that impact a producer's perception of program performance. While it's recognized that the list is not complete, the ones that have major impacts have likely been identified.

It is recommended that MASC further delve into the issues identified and explore ways to better reflect the characteristics of forage production and the forage producers.

The forage production characteristics that need to be considered when reviewing the program issues and options include:

- the wide variability in production levels
- the unique sub-sector characteristics – dairy versus beef versus forages for sale
- the diversity of forages and how these perennials change over time
- the flexibility to graze or change forage plans
- the market prices for replacement forages

In general, MASC should consider ways to be more flexible, to align with the variability in production, and the data available in the industry.

Specific areas that are recommended are:

Yield

1. Address the issues that **the yield coverage offered to new insureds** and producers that have a change in their forage field (due to age or mix of forage) is not aligned with a producer's expected yield until a producer builds up individual records. In the meantime, they have coverage based on an area average yield and the claim year based on their individual yield (see Analysis Item 1).

There are two aspects to this issue that need be addressed: the individual's yield level and ensuring probable yield for indemnity is measured the same as it is for determining coverage and premium. This can be accomplished by:

- Being more flexible in the type of information accepted to establish coverage. Giving agents discretion with guidelines is done elsewhere and should be explored.
- Establishing a management index for the producer and applying it sooner, based on a percentage of the individual's performance each year.
- Ensuring the indemnity is measured in the same way that the coverage is determined. An option is to apply the same proportion of area average and individual yield to the indemnity and coverage and move the proportion up as the individual information is available.

2. Provide meaningful coverage on an ongoing basis, including after experiencing significant losses after disaster years. The current coverage is too sensitive to the impacts of disaster.

   This can be addressed by cushioning the impact of a disaster year. AAFC advises that the coverage should be stable and not overly sensitive just because a disaster occurred.

   Effective cushioning can be done by limiting downward and upward changes to yields or limiting only downward yields and applying a minimal increase for the pool of insureds.

Prices

3. Address the issue that forage prices used for indemnities do not reflect the market prices of replacement forage.

   This can be accomplished by changing insured prices to reflect the market prices of the insured period, rather than using historic prices.

   It is recognized that a system of capturing prices would be required. MASC could pursue an arrangement with an organization like MFGA, which currently records prices. This practice is currently done in Saskatchewan with one of their producer associations.

Amount of Coverage

4. Address the concern that there is a gap between coverage and cost of replacing feed. If the first issues are fully addressed, the remaining gap is the deductible, which will be at least 20 per cent of the feed replacement cost.

   This can be addressed by adding higher coverage level options. The federal government will consider cost sharing above 80 per cent coverage. Anything above what the federal government will cost share is the responsibility of the province and producers. It is not clear how much demand there would be for higher coverage, given that premiums

increase as the risk of loss increases. However, after multiple bad years, producers may have depleted reserves and be willing to consider it.

Coverage Stability

5. Address the issue that the program relies on forage categories that are restrictive, and coverage is sensitive when forages move between categories.

   The solution is less apparent and would require a more technical assessment of the issue and investigation of the options. Suggestions include:

   - Develop a quality index that accounts for the actual quality and prices.
   - Smooth movements between categories to reflect what happens to production rather than a complete categorization change in one year.
   - Recognize more forage types (legumes) in higher coverage categories.

Participant Burden

6. Address the issue that many producers find the program too onerous.

   This requires a complete review of current processes and requirements of participants. It is suggested that MASC conducts a lean analysis and seek way to be more flexible in what, when and how information is required. This needs to be done from the producer's lens.

   Specific suggestions that arose are:

   - Reduce detail required in reporting – accept production reports for field or farm level.
   - Review verification process to reduce client time, inconvenience, and costs.

   Note: Saskatchewan and Alberta appear to accept less information, conduct less verification, and have more flexibility in how information is reported. Further investigation into their practices and lessons learned is warranted.

Leverage Partnerships

7. Leverage partnerships with industry to improve understanding of sector needs and responsiveness, to build trust and confidence with the sector, and to advocate for use of the program.

   Develop a livestock forage insurance team – create a team that is dedicated to improving the effectiveness of forage insurance. Members would include industry association reps, ARD livestock staff and some producer ambassadors.

Leverage financial community - Lenders, accountants, and financial advisors all have significant influence on producers' financial decisions. They indicated they would welcome engagement to obtain program information and examples of how the program has helped address risk, and if done effectively, they will include it in their discussions with clients.

Review the Remaining Issues

8. Above is a summary of the most common or significant issues and suggestions to improve the program. The full list is much broader and detailed. It is recommended that MASC review all the issues and suggestions for improvements identified by participants, assess the magnitude of impact in meeting the program objectives, and develop an appropriate action plan.

JURISDICTIONAL ANALYSIS AND REVIEW OF ALTERNATIVE INSURANCE PRODUCTS

The following reviews alternative approaches to insure forages provided across Canada and in competing nations.

The current approach to insuring forage shortfall in Manitoba is considered a yield-based approach that is based on an individual farm's field level production assessment to determine coverage and indemnity. This is the approach traditionally used for insuring annual crops.

There are many challenges applying this approach to forage, particularly in measuring yields, standardizing the insured crop and the associated amount of administrative intervention required. Forage producers do not keep records of their forage yields or its quality, and occasionally change the intended use of their fields to extend or supplement grazing. Capturing adequate information is challenging and requires additional work for the livestock producer.

Insurance approaches applied around the world were reviewed to identify alternative approaches to insuring forages and their applicability to Manitoba.

Provincial programs were identified by an on-line review of programs and follow up interviews were done in provinces where it was deemed important to capture their experiences. Three provinces were interviewed: Alberta, Saskatchewan, and Quebec. The journal article, 'Index insurance for grasslands - a review for Europe and North America' by Vroege, Dalhaus and Finger, provides an in-depth review of the program offered, and was used to identify programs offered in other parts of the world and to obtain technical information on the alternative products.

Use in other jurisdictions

Outside of Canada, the index approach is the main method of insuring forage in developed countries around the world. In North America and Europe, indices are used as follows:

Countries	Index Variable
USA	County-Area yield Index
Austria, Canada (SK, AB, ON, NS, PEI), USA,	Rainfall Index
Germany, Canada (QC)	Weather Index
Switzerland	Rainfall and Evaporation Index
Spain; Canada (AB)	Area based - Satellite
France	Farm level - Satellite

The products offered in each province across Canada are shown in the Supplement Analysis section – Analysis Item 3.

It is evident that the most common alternative approach to insuring forages are a version of an index approach, and that most jurisdictions around the world use some form of index approach for insuring forages.

Index Approach

A brief analysis of the index approaches was conducted based on the journal review and interviews with some provincial agencies.

The index approach relies on an endogenous index that is highly correlated to, but independent of, the actual forage yield.

There are three types of index approaches that are briefly described below:

1. Area Yield Index

In *area-yield insurance* schemes, payoffs are triggered whenever the average yield in one year in a certain area falls below a certain pre-set critical threshold.

Area-yield insurances have several advantages over traditional farm level insurances.

First, there are usually longer records of high-quality yield information than at the level of individual farms, implying a better risk assessment.

Second, the risk of moral hazard is reduced because the influence of the behaviour of a single producer on the total yield in an area is less than on their individual yield.

Third, administration costs are lower as payoffs are made collectively and not individually for each farm.

The disadvantage of area-yield insurances is that they are affected by spatial basis risk. That is because payoffs are only triggered by an average loss from which individual losses can differ.

Due to aggregation biases, the regional average yields may exclude important farm-level information, such as elevation, so that a single farm's risk exposure might be underestimated.

2. Weather index

Weather index insurances aim to reduce the impact of harmful weather on farms whose production widely depends on climate. All sorts of weather phenomena can be used in the underlying index. Precipitation, temperature, wind, solar radiation, or combinations thereof, and water capacity-based indices, can be used.

In these designs, a payoff occurs whenever the index estimating dry conditions undercuts a certain strike level. The trigger of weather index insurances is thus fully independent of the farmer's decisions.

This has multiple advantages. The weather index, if measured by a party independent of the farmer, cannot be influenced, erasing issues of moral hazard.

Another advantage is that weather index insurances can also insure for reduced quality of the grassland and for increased input costs in response to weather shocks.

For instance, irrigation might be used to compensate the lack of precipitation. In contrast to area-yield and indemnity insurances, these additional costs are at least partly covered in weather insurance schemes.

However, weather indices suffer off basis risk, which is considered one of the most important adoption hurdles. Spatial basis risk occurs if the measured weather (e.g. at a remote weather station) differs from actual weather at the production site. Temporal basis risk occurs if the yield determining weather is measured at an incorrect point in time (i.e. ignoring vulnerable phases of plant growth).

Design basis risk includes all remaining discrepancies between modeled production and realized production. Only insuring a single weather peril for instance, ignores the influence of other drivers of yield variability such as other weather events to be considered, resource availability and pests.

3. Satellite imagery index insurance

In recent years, as open source satellite data quantity and quality are constantly improving, satellite imagery has been found to have a large potential for insuring agricultural production.

Satellite imagery can be used as a data source to design and/or support both indexes insurances and traditional field level insurances. While there may be benefit in using satellite imagery to support field level damage assessments, it is outside the scope of this review.

Under this scheme, satellite imagery is used to measure quantity and quality based on data received from the forage canopy.

An insurance product successfully incorporating satellite imagery reduces costs and basis risk. As spatial, temporal, and spectral resolutions of collected imagery are numerous, the spatial and temporal basis risk can be minimized, but not eliminated.

Design basis risk of satellite insurances arises because the measured quantity and quality may not perfectly correlate with actual losses in vegetation growth and health on the field.

Satellite information can also be useful to improve area-yield and weather-based insurances. In Zambia, for example, a rainfall index insurance for cotton based on satellite data is operational. Satellite weather estimates are, in contrast to weather station rainfall measurements, by default regularly gridded, and do therefore not depend on the distribution of ground-based measuring stations.

Pros and Cons

The benefits of the index approaches are:

It provides meaningful insurance option for crops that are difficult to insure under traditional methods, because of difficulty to obtain production information, standardize and measure.

There is significantly reduced participant burden, as there is no on-farm intervention, reporting, or a requirement for participants to understand and comply with administrative processes.

Moral hazard is minimized as triggers are independent of the actual farm results. Note the exception for farm-level satellite indexes that maintain some moral hazard.

The cons of the indices are the basis risks, which can render the program ineffective for a producer, if significant enough.

In Alberta and Saskatchewan, the index programs are available for pasture insurance and Alberta also offers a rainfall index option on hay to top up their yield-based program.

In discussions with the provincial agencies, they found that the interest in the index programs was increasing and that offering them was well received by the producers.

SCIC had an increase in participation of their weather-based program from 2018 to 2019, where acres enrolled went from 1.5 million to 2.2 million (a 50 per cent increase). This was somewhat because they increased their coverage levels and because of more interest from the community pasture corporations. AFSC indicated their participation level in pasture insurance is 25 to 50 per cent depending on how the available acres are calculated. Quebec has the participation in the country at 50 to 60 per cent of available acres.

For the rainfall index, the biggest common issue across all areas is the spatial basis risk. The most common criticism by producers is that it can be a gamble, as triggering assistance is sometimes a lottery on whether the rainfall at the stations is the same as the forage fields.

SCIC indicated they are trying to resolve this by adding more weather stations, with a target of all land being within 30 kilometres of a station. They are also exploring other options and technology (such as satellite) to fortify their own stations. Quebec has a vast amount of stations, which minimizes the issue.

SCIC is also supporting research on satellite indexes. They have refrained from using it as producer readiness for the technology was deemed too low and are more likely to introduce it when their producers show they are ready and want it.

AFSC provides the satellite in the southern regions of the province, along with a rainfall index. They felt that while satellite is theoretically more accurate that it was not always the case. They are now supplementing their satellite with field level clippings to test and improve results. They indicate that more producers preferred the moisture index, because the results were clearer and more transparent. They also noted that an inherent problem was offering both indexes in the same region, as producers would compare who received more which raised criticism of the one that paid less regardless of which one was more accurate. Their advice is to offer one, but not both.

Applicability of these Indexes for Manitoba

It is noted that MASC has previously explored some of these approaches and there are currently two satellite projects under consideration by MASC that have potential for Manitoba forages.

Alberta has contracted a team of consultants on a project that creates an algorithm from comparing satellite images and pasture/hay data. The team is seeking to further develop the product for Manitoba and Saskatchewan, as well as to add tame hay to their products. MASC could potentially end up with a forage insurance concept that is more catered to Manitoba's unique forage landscape. After the concept is developed, it will need to be operationalized, and potential strategies for this will be examined as part of the project.

Airbus currently has a commercially operational product in France and Italy. The product uses satellite imagery to trigger claims on insured forages. They have proposed to run a project in western Canada to test the Grassland Production Index (GPI) developed by Airbus and Scor (a reinsurer). MASC could potentially end up with a forage product that has less paperwork than current programs and less basis risk compared to a weather index. If successful, an ongoing commercial agreement will be required with Airbus.

These two projects provide an excellent opportunity for MASC to test the products and potentially end up with a product that can be transformational to the way forage insurance is offered and to producers' risk management tools.
.

In consideration of whether an index approach is applicable for Manitoba, the following criteria should be considered:

1. How well the approach responds to the type of losses producers want to insure. How the approach compares to the traditional methods in meeting the objectives and elements identified by producers.
2. How well Manitoba positioned to adopt the program and what is needed to put it in place.
3. How producers would consider the method and the marketing and change management process that is required.

The index approaches are suited for measuring production shortfall losses and not spot-loss, such as forage establishment.

Satellite should have the best capability to capture the production losses on the farm regardless of cause. Weather-based can capture many causes but have greater basis risk.

Very few producers interviewed were aware of the index approaches. After presenting how it works, there was a remarkably high level of interest shown. Many producers felt that it had a lot of potential for them. Even those producers that were previously not at all interested in insuring their forages were willing to consider it.

Producers were particularly attracted by the low participant burden and the simplicity for them to participate. They also felt it was a fairer approach, as they want to ensure any program offered is not a disincentive for good management.

Beef producers interviewed felt the index option could attract participation by other beef producers less inclined to take insurance because of its lack of reporting requirements.

Participants felt the approach has merit, particularly for pastures, and were less convinced that it would be preferable for tame hay if their other program issues were addressed.

There was no clear evidence of which index approach would be preferred. Some producers wanted the rainfall, because that is the one element they have no control over and they like the transparency of it. Others liked the satellite because it is more comprehensive and there is less basis risk (spatial and temporal).

Dairy producers indicated that quality would need to be taken into account for them to be interested in the index approach.

The producers indicated that prior to making a decision on whether to accept the index, they would want the following information:

- evidence of the efficacy of the approach, such as some back-casting on what payments would have been for the index technology offered
- clear understanding of what the program will do and will not do
- lessons learned in other jurisdictions and how they are being addressed

Conclusions and Recommendation for an Alternative Insurance Approach:

The current approach to forage insurance in Manitoba somewhat reflects the square peg – round hole phenomena, as it attempts to be very precise on yield calculation and the information required is very extensive, yet production is not easily measured and producers don't want to spend extra time on it.

The index approach may not be perfect, but it has the potential to better address the concerns of the current program and meet the needs of clients that otherwise would not insure. The apparent potential is particularly high for pasture and coarse hay, given their low participation rate and insurance challenges.

For tame hay shortfall, it is less clear as the current program approach allows for a precise calculation, but the process is onerous, and the participant burden is heavy. The comparison of the current approach to index depends on how well MASC can address the current issues.

Recommendation:

Given the potential, MASC should pursue a project that validates the efficacy of weather and satellite-based approaches in Manitoba and moves towards a pilot program. The two satellite options currently offered for Manitoba provide an excellent opportunity to both test the products and to introduce the approach to Manitoba's industry.

Criteria for gauging the effectiveness should capture how well it meets the program objective of providing meaningful assistance when needed, being equitable, and minimizing the participant burden.

SUPPLEMENTARY ANALYSIS

ANALYSIS ITEM 1 – IMPACT OF YIELD ISSUES RAISED

The intent of this analysis is to show the impact of the yield methodology used in the current program on a producer's coverage level and cost/benefit.

The methodology used in the program:

The past 10 years (two years lagged) of either the area average or the individual producer's actual yields if available. The coverage level moves from area average to the individual producer's actual yield over five years (also lagged), based on each year of recorded experience.

The area average yield is based on records are from all insured producers in the region determine regardless of whether they insure their forages.

The Issue:

The issue applies for the period of time that producers are not able to use their own historical yield to determine coverage and have to start with the area average.

The concerned producers are those that indicated they yield above the area average because they use higher inputs of fertilizer, may replace forages earlier, and may be on better soil.

They noted the program gives them insufficient assistance in the event of a shortfall. They felt that they are overpaying, because they receive less than those that are at or below the average, and yet they pay the same premium.

This is a major issue that hits on three of the decision factors – effectiveness of the program, equity and return on investment.

When coverage is below an individual's own average, it results in them having a higher deductible and less assistance in times of need.

The variability of yields within a region illustrates the prevalence of this issue. Using one example of Region 4, the average yield was 1.56 t/acre and a standard deviation of 1.037, which means the range is significant, with 68 per cent between .5 and 2.5 t/acre. In addition, on some soils within the region, production was over 4t per acre.

If the area average of 1.5t/acre was used for a new insured producer and they select 80 per cent coverage, the program would trigger assistance once the producer has a yield of 1.2t or less.

In the extreme example for a producer in this region who normally expects 4t/acre, the area average is the equivalent of a 70 per cent drop in yield to trigger assistance, yet they pay a premium based on 20 per cent drop. Their likelihood of having that extreme of a decline is very low and the amount of assistance to replace the loss as negligible, because they will have 2.8t of their shortfall not covered at all. If the coverage were based on their own production, they would trigger assistance once they are below 3.2t/acre, which provides 2t/acre more coverage.

There are two root causes for this issue. One is that the producers' level of coverage does not align with their own production capacity, and coverage can be too high or low. The other is that two different sources of information are being used to measure coverage versus claim, which results in the above-average producer having a higher deductible and over-paying on their premium as the probability of loss is lower. This issue exists until an individual's history is applied to determine coverage. Until then, the issue exists and increases in significance the more an individual's yield varies from the area average.

Challenges and Possible Improvements:

Challenge - Livestock producers generally do not maintain records of production for their forages, and since the forage is fed for their own use, there are no transactional activities that can readily be used to verify volumes produced.

MASC recognizes the issue and the goal of moving to a producers' own historical yield as soon as possible, which is why they created the accelerated feature. Few producers know about this feature and when raised, they were pleased, but felt it was still too long and too costly as it could take seven years of excess premiums until they received adequate coverage.

Other programs that capture some producer's records of production are AgriStability, Dairy Benchmarking, some farm management software, and some may be reported to third parties, such a lenders or used for accrual tax purposes.

The possible ways to allow a producer to use their own yield are:

- Accept producers' records from other programs that have a third party involved, such as AgriStability or Dairy Benchmarking.
- If the producer is in crop insurance, use their relative management experience (based on a ratio derived from their crop Individual Productivity Index) and apply it to their forages. (SCIC applies the producer's crop experience towards their forage coverage, called the Management Experience Transfer.)
- Allow a producer to present their normal yield and their records if they are reasonable and adequately maintained (set thresholds for reasonability and acceptable records).
- Develop a yield recording tool that producers can use to build a coverage level, which could be used if they decide to start insuring in the future.

It was noted that SCIC allows the option of accepting the producer's records. However, there is low uptake as producers do not normally have records.

Regarding the issue of applying different measures for determining coverage than claim year, one approach MASC could explore is to calculate the claim year yield in the same manner that coverage was determined for the period of time until they move to a fully individualized coverage level. There would need to be accommodation for the individual situation being worse than the area, to account for variability that can occur within the region as well.

Some suggestions for MASC to explore:

- Develop an individual's estimated management index based on their information and depending on the strength of it, apply a percentage to the area average to determine coverage for each year, and use the individual's actual yield for the claim year. Then increase the percentage applied to the area average each year.

  Example – Area average is 2t/acre; producer indicates that normal yield is 3t/acre or 150 per cent of area average and can provide information that is reasonable to assume they are above average but do not have sufficient records. In first year, the producer would be eligible for coverage at 125 per cent of area and would move to 150 per cent of area average by the third year, based on some measures of performance.

- Where there are no producer records, apply area to area in determining coverage and claim year information, adding a proportion of individual history each year, and applying the same percentage to the coverage vs. claim year. At the same time, there would need to be an individual to area factor to account for individual variability with the region.

  Example – The producer has no record of yield. In year one, the producer receives coverage at area average and claim year is based on area average. In year two, the producer receives coverage and claim year based on 20 per cent of their own yield and 80 per cent area. This is like current acceleration method except it is also applied to the claim year.

To accommodate the individual variability, if the producer's yield drops more than the area yield drops, then an option is to give the producer the better of the two.

These suggestions are simply approaches to explore and are provided to generate some ideas towards how the issues can be addressed. Building a program product requires far more consideration of the impacts, alternative options, and implementation processes.

ANALYSIS ITEM 2 – IMPACT OF INSURED VALUE (PRICE) ISSUE

The intent of this analysis is to show the impact of the price methodology used in the current program on producers by identifying and illustrating the difference between the prices used in insurance indemnities to the market price for replacement feed.

The Methodology used in the Program:

Hay forage prices are based on a five-year average (lagged by two years) of the Manitoba market value of dairy quality alfalfa hay, adjusted to reflect relative feed values for other hay types, and with an added allowance of $8/t to reflect the cost of transporting replacement hay in the case of crop losses.

For Basic Hay forages, the low dollar option is 30 per cent of the dollar value for alfalfa and the high dollar value option is 50 per cent of the dollar value for alfalfa insured as Select Hay.

In contrast, the major grains, oilseeds, and special crops are a forecasted price provided by the Market Analysis Division of AAFC.

The Issue:

Producers need to replace their feed shortfall by purchasing feed at current market prices, which rise during periods of widespread shortages such as drought. Historical prices have been significantly below market prices in 2018 and 2019 (see Charts below).

Note: One producer advises that in 2019, their forage costs doubled or tripled with shipping costs, as most available forage was 500+ kilometres from the Interlake Region.

Challenges and Possible Improvements:

Challenge - The challenge is in obtaining quality current market prices and in setting premiums based on prices that can rise significantly. However, this is done in SK and AB. Saskatchewan set the base price based on current market prices and will adjust it upwards to a maximum of 50 per cent. Alberta offers a variable price option that increases coverage if prices rise during the year.

It is recommended that MASC move away from using historical prices and establish a price based on the current market. They should consider using current market prices as the base price and explore a way to adjust the price if the market price changes later in the year when feed is to be purchased.

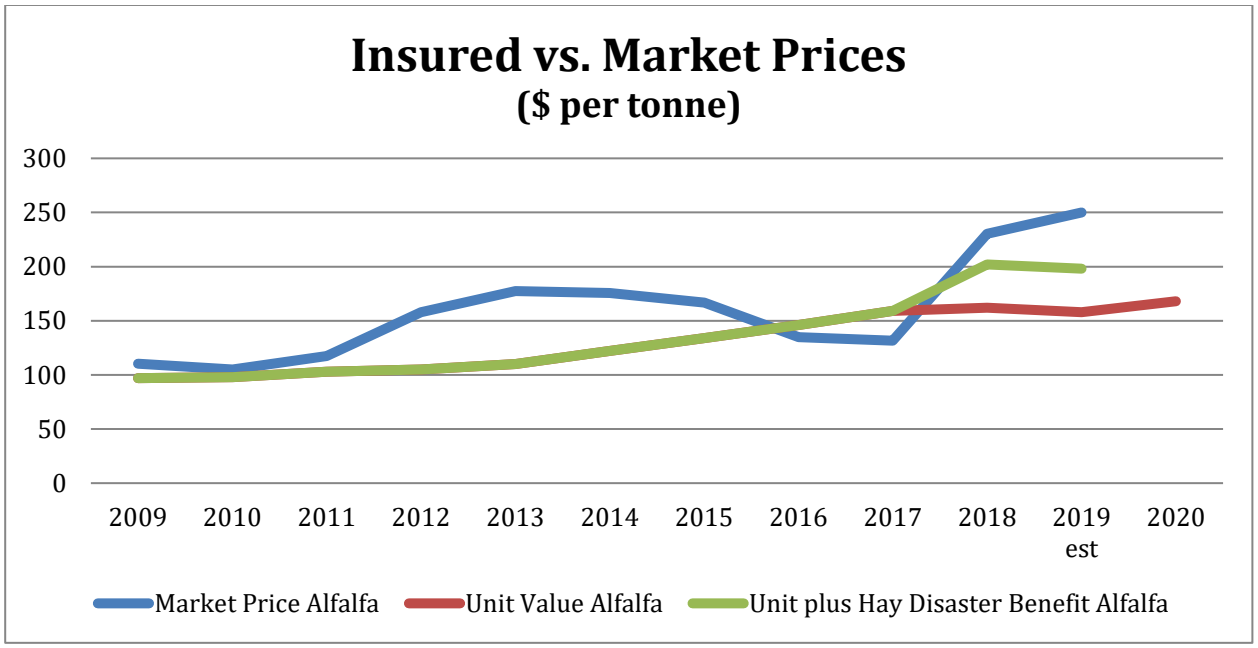
They should also regularly review the pricing scale that is used to set the price for each hay type against the actual market prices for the respective types and adjust the prices to ensure it aligns with the market.

MASC should pursue an agreement with a third-party provider, such as MFGA, to provide prices in a format required for the program.

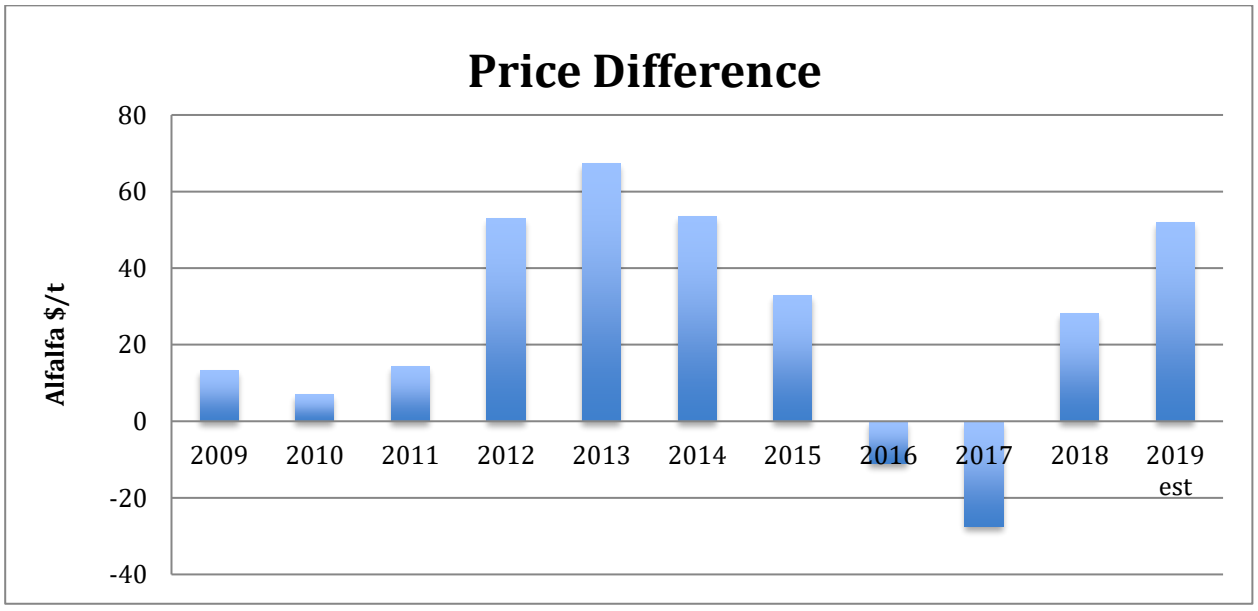
Comparison of Insured Prices to Replacement Feed Prices:

The charts below show the insured prices (green and red) compared to in-year market prices for alfalfa hay.

The charts validate claims that prices are not aligned and below in the recent disaster years.



The price shortfall in 2018 and 2019 ranges from $20 – 50/t after the Hay Shortfall Top Up



ANALYSIS ITEM 3 - JURISDICTIONAL SCAN OF HAY AND PASTURE INSURANCE IN CANADA

Province	Hay Program Indemnity	Perils Covered	Insurable Value Methodology	Individual Yield Enhancements	Pasture Program Type	Others
BC	Individual Yield	Comprehensive	N/A	Accepts individual records for yield	None	Forage supply coverage
Alberta	Individual Yield and Rainfall (top up)	Comprehensive - Drought index	Base- forecasted and adjusted in-year	Cushion disaster years	Rainfall (drought) and Satellite (area)	Spot loss fire
Saskatchewan	Individual Yield	Comprehensive	Base is forecasted and offers in-year options	Cushion disaster years. Mgmt. transfer	Rainfall index (drought)	Forage Restoration Novel Forages
Manitoba	Individual Yield	Comprehensive	Base- historical average and Hay Disaster Benefit	Individual Forage type or whole farm	Pasture shortfall (hay proxy) and pasture days	Forage Restoration/ Forage Flood
Ontario	Area - weather index	Drought and excess moisture	N/A	N/A	Rainfall (drought and excess)	
Quebec	Area – weather index	Drought, excess moisture, frost	Feed replacement option	N/A	Weather Index Drought, excess moisture, frost	
Nova Scotia	Rainfall Index	Drought and excess moisture	N/A	N/A	Rainfall index (drought and excess)	
PEI	Rainfall and barley proxy crop	Rainfall – Drought, excess moisture Proxy - comprehensive	N/A	N/A	Rainfall drought and excess moisture	
New Brunswick	None				None	

Note – Individual yield means that indemnities are based on the individual's actual yield compared to individual coverage where coverage is based on individual productivity if acceptable records are available or area average yield if not.
Area - Indemnities are based on area average results compared to area history.

ANALYSIS ITEM 4 - COMPARISON OF FORAGE TO CROP INSURANCE

Forage Insurance participation is frequently compared to crop insurance to determine its degree of success, since crop insurance has 90 per cent of the annual crops insured. An attempt has made to illustrate some of the differences that should be considered in doing a comparison. The findings are summarized below:

- the clientele and the risks they are insuring
- the effectiveness of the program in addressing the risks

There are distinct differences that need to be considered when considering that forage insurance is predominantly for livestock producers.

1. The risk that producers are insuring is fundamentally different. Revenue versus Inputs.

   Crop Insurance protects revenue risk, whereas forage insurance protects input risk. Both are important as they factor into profitability.

   Producers focus on maximizing revenues and will insure to protect it. Livestock producer revenue is their livestock and they will focus efforts on maximizing productivity and value of their livestock. Feed is an input and they will focus on producing it at as low a cost as possible.

   Note: Forage producers that produce forages to be sold are more like crop producers than they are to livestock producers, as they are insuring revenue.

2. Management intensity is generally high for crop producers. Crop producers have higher machinery and land costs and require higher returns per acre. There are high operating costs for crops relative to forages, which increases the risk to the farm's viability from a production shortfall.

   The livestock sector has a diversity of management practices, where some producers are using high intensity inputs and others very low intensity. The increasing use of annuals, such as corn silage, is increasing the level of intensity and input costs.

3. Livestock producers have many on-farm risk management alternatives to deal with production problems, whereas crop producers do not have any to replace the lost revenue.

4. Third parties influence - Creditors and financial advisors encourage or require producers to protect their revenue by using insurance, whereas currently this is not done for forages. Crop producers have a high use of the federal cash advance program, which requires them to carry crop insurance to obtain an advance during the growing season. There are no similar linkages for forage insurance.

   Creditors indicated that they would encourage participation if they were more aware of the benefits of forage insurance in dealing with the risks their client face and were confident that there is a positive ROI.

5. Awareness and understanding of insurance products - Reviewing how crop insurance participants understand the program was not in the scope of this review. However, it appears there is a high level of awareness of the program options and how the program works.

   This is likely due in part to the programs being more intuitive, and in part to broader communication and experience of the producer and others with the programs.

6. The ability to provide yield information is easier for crop producers, as crop types and quality are standardized, and producers regularly capture their yield and quality from each field as part of their farming practice. Their intended use of the insured crop does not change.

   Capturing this information is challenging and requires additional work for the livestock producer. Forage producers do not keep records of their forage yields and quality, and occasionally change the intended use of their fields to extend or supplement grazing.

7. The perceived effectiveness of insurance products. Their issues of concern are more evident in the forage program.

   Prices (Insured values) - price for most crops is based on a forecast for forage prices, based on historical prices.

   a. Prices are more acceptable to the insured at the time of purchasing because it relevant for the period of coverage.
   b. The impact of prices changing during the year is an opportunity cost for crops and is a realized cost for livestock that have to purchase replacement feed. Forage prices are more likely to rise when there is a production shortfall, as prices are based on local demand and supply, whereas crops are generally global price takers and local production has no impact.

   Yield – Both forage and crops start with an area average for coverage, unless the producer has individual records, at which time crop producer's coverage is adjusted based on IPI and forage producer is adjusted for actual yield. The area averages are based on the results of insurance participants, regardless of whether they insure the actual forage or crop.

   There are many forage yield issues as noted in the effectiveness section of this report. The most relevant to this comparison are:

   The area average for forage is determined by a much smaller proportion of growers and is perceived to be too low. The low yield is a combination of the program attracting lower yielding producers due to adverse selection, and producers underreporting yields as they graze some fields and fail to report the change in use. Note: Most producers do not consider that the yield is determined by all insured producers that have and report forages, and not just those the insure them. MASC reports that including the total number reporting adds from 50 to 100 per cent more acres in the calculation, depending on the forage type used. Nonetheless, this would still be well below that used in crop insurance.

The lack of records forces a forage producer to accept the area average yield and discourages participation if the producer's actual probable yield is higher (perceived or real) than the area average. Crop producers generally have records and can establish a yield that they can accept and is more readily available.

APPENDICES

APPENDIX A - SCOPE OF WORK (EXCERPT FROM STATEMENT OF WORK)

The Forage Program Review should include the engagement of producers, producer groups, MASC, Manitoba Agriculture and Resource Development, and Agriculture and Agri-Food Canada, as well as a scan of other programs available in Canada and internationally.

The review should seek to:

1. Establish what the demand is for a forage insurance product in Manitoba.
2. Better understand the perception that cattle producers have of forage insurance.
3. Understand current ways forage producers mitigate risk in the absence of purchasing insurance.
4. Establish key elements that are necessary for a forage product to be successful in Manitoba.
5. Review applicability of forage insurance concepts being developed in other jurisdictions.
6. Create a rough outline of a potential forage insurance product that considers the interests of all stakeholders.

Deliverables and Schedule

It is proposed that an external consultant be procured to initiate and lead a task team as soon as possible. The task team will engage with the appropriate stakeholders and generate a final report.

The final report will include an executive summary, objectives, project scope, background, analysis, conclusions, recommendations and implementation plan.

APPENDIX B - FORAGE INSURANCE SURVEY

Producers, producer organizations and service industry providers were invited to provide their input into the forage insurance review by completing an online survey. Paper versions were also made available for those that preferred or were unable to complete it online.

Industry associations chose to send all their comments in on paper versions. Five industry associations participated, including Manitoba Beef Producers, Keystone Agriculture Producers, Manitoba Forage and Grassland Association, Manitoba Bison Association and Dairy Farmers of Manitoba.

Online Survey – A survey and questionnaire was conducted beginning on February 19, 2020 and was open until March 31, 2020. There were extensive communication efforts undertaken to inform producers about the survey. This included government news releases, social media, and industry association contacts to members. The agricultural and rural newspapers and some radio stations announced that the survey was available.

Online survey participation:

- There were 139 visits to the site. Fifty-four participated in the quick poll and 36 participated in the full survey.
- Of the 36 online participants, three were industry service providers and 33 were agricultural producers. One producer sent in a paper version.
- The type of livestock owned by the producer participants – four dairy, 31 beef, one bison and one had no livestock (produces forages for local market).
- Twenty-one producers have used forage insurance and 12 have not.

The full survey questions and results, along with the focus group results, are provided in a separate package to MASC.

The limitations of the online survey – A relatively small proportion of the industry participated, and the participation could be skewed to producers that currently have an interest in the program, whether that be supportive or critical. Those unaware or disinterested were unlikely to participate in the survey.

Accordingly, the producer survey numbers alone should not be used to make a quantitative assessment for the entire sector. The comments provided were thoughtful and of value for a qualitative assessment, particularly when combined with the follow up interviews and industry association reports.

APPENDIX C - STAKEHOLDERS CONSULTED

Name	Dates	Who was involved	Purpose
KAP	Feb 10	GM and Policy Staff	Reviewed project objective and approach, consult process and questions
MBP	Feb 10	GM and Policy staff	Review project objective and approach, consult process and questions
U of M - FAFS Ag Econ Dept.	Feb 7	Department Head	Invited academic input
AAFC	Feb 7, April 20 and 22	Chief Actuary and Director; AgriInsurance Assistant Director and Program Manager,	Discuss how options comply with guidelines. Obtain results from previous working group review
MASC Agents	Feb 13	6 Agents	Review program performance, challenges and issues
ARD Livestock Branch	Feb 26	6 Livestock staff	Gather their expertise from analysis and experiences from working with producers
Online survey		37 participants	Identified risks management, program issues and improvements
Online quick poll	Feb 13 – March 31	54 participants	Indicating their interest in forage insurance
KAP members	March 19	5-6 producers and 2 KAP staff	Gather info to prepare a submission
Industry Associations		MBP, DFM, MGFA, KAP, MBA	Received submissions related to review questionnaire
Beef Focus Group	March 26	3 producers & 2 MBP	Expand on issues heard and improvements
Dairy Focus Group	March 27	5 producers	Expand on issues heard and improvements
Individual Calls to MBP selected producers and others	March 25 – April 3	6 producers (5 beef and 1 bison)	Obtain personal experiences and perspectives
Other Jurisdictions	March	Alberta, Saskatchewan, and Quebec provincial insurance agencies	Discuss issues and how they are managed, review products, management practices and experiences
MNP – Financial Advisor	April 6	Lead Farm Management Consultant	Where FI fits in their planning and advice to clients and potentials
Lenders	April 14, 16	RBC and SCU Agriculture Lending Supervisors	Where FI fits in their credit requirements and potentials

APPENDIX D - GENERAL CROP INSURANCE PRINCIPLES

Moral Hazard: Insurers want indemnities to be the result of random loss events. Moral hazard occurs when people engage in riskier behavior than they would if they did not have insurance, which results in increasing the probability or extent of losses. This is the main reason for deductibles and the reason that 100 per cent coverage level is not available. In Manitoba, producers can select 50 per cent, 70 per cent or 80 per cent coverage level. MASC cannot provide coverage above 90 per cent, and not above 80 per cent in most cases (based on rules set out in federal agreements).

Adverse Selection: Adverse selection arises when high-risk farmers are more likely to purchase crop insurance as they perceive larger benefits from participating. Program designs must ensure that the programs do not experience an unexpectedly high probability of loss because of the type of insureds who choose to participate in the program. Adverse selection happens when the insured has more information about whether they are high-risk or low risk.

Risk Splitting: This occurs when insurance coverage for products do not meet the criteria required to establish that products are distinguishable – visually distinct, different production capabilities, separate storage, different market/price and end use. The federal regulations stipulate how provinces must adhere to these risk-splitting criteria.

Accurate Dollar Values: MASC must ensure that insurable dollar values do not exceed the actual value of the crop over time. As set out in federal regulations, MASC must provide documentation that illustrates that the crop meets statistical tests set out in the regulation. If the dollar value exceeds the actual or replacement value of a product, then there is reduction in cost sharing from Canada (the entire plan shall be eligible for funding under the High-Cost Production Loss Coverage).

Accurate Probable Yields: MASC must demonstrate that the probable yields offered reflects the demonstrated productive capacity of the agricultural product, considering the level of quality coverage provided. As set out in federal regulations, MASC must provide documentation that illustrates that every agricultural product covered by a yield base plan meets probable yield tests.

Actuarially Sound Rates: Rate methodologies must be in accordance with guidelines and any changes must have a written opinion from an actuary.

High-Cost Production Loss Coverage: Canada will participate less in premium sharing if there are risk-splitting benefits, coverage above 80 per cent for high risk crops, or benefits that would exceed the replacement value of the product. Canada will only pay 20 per cent of the premiums for these plans.

Other cost-sharing agreements – rules to what qualifies for each are set out in federal agreements:

- catastrophic loss coverage - Canada pays 60 per cent, Manitoba pays 40 per cent
- comprehensive production loss coverage, Canada pays 36 per cent, Manitoba pays 24 per cent

General Principles (as per the A FEDERAL-PROVINCIAL-TERRITORIAL FRAMEWORK AGREEMENT)

The provinces agree to consider the following principles when designing or modifying risk management programs:

- Programs shall be in conformity with Canada's international trading obligations and should minimize countervail risk.
- Programs should minimize moral hazard and not unduly influence farmers' production and marketing decisions.
- Programs should be developed in consultation with the agricultural sector and other relevant stakeholders.
- Programs should have a clear purpose, and be comprehensive, comprehensible, predictable, and simple to administer.
- Parties agree to make efforts to improve administrative efficiency in program delivery.
- Programs should minimize the disincentive for the use and development of private sector risk management tools.
- Programs should not impede market or production signals, or adoption of innovative practices.
- Programs should apply to the stability of the entire farm entity.
- Payments for the purposes of stabilization, disaster mitigation or production loss should not be capitalized into assets.
- There shall be limits on the levels of assistance to producers.
- Programs should help mitigate a broad range of risks by allowing for increased or enhanced environmental stewardship and improved food safety and quality.
- The financial resources of Canada should be allocated to provide, over time, the same level of protection for farmers in similar circumstances.
- The allocation of federal and provincial funds should not favour regional or commodity-based production of one PT explicitly over that of other PT's.

APPENDIX E – HISTORY OF MASC FORAGE PROGRAMS OFFERED

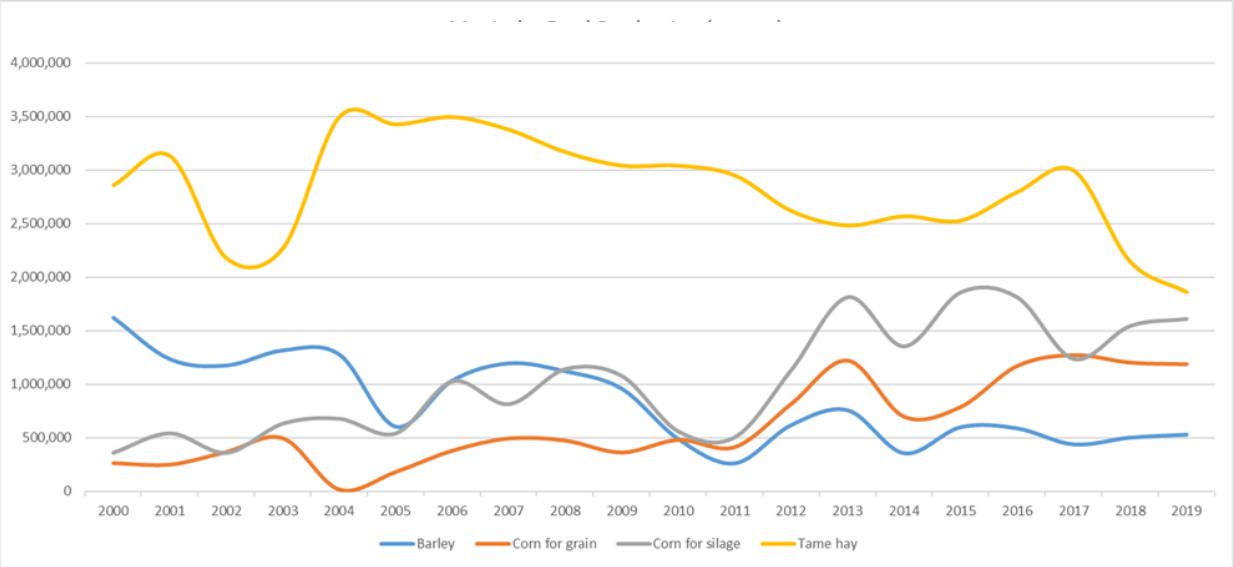
Year	Change	Why
2019	Wildlife Damage Compensation for Grazing Forages	Extended season grazing is appealing to some ranchers for its economic and environmental benefits and is promoted by Manitoba Agriculture. Providing WDCP benefits to livestock producers would support these sustainable practices and aid in the province's protein strategy.
2014	Change from Tame Hay and Native Hay insurance to Select and Basic	Result of an internal forage review in 2011. Low coverage - switch to from IPI system to individual coverage to better reflect individual yields. More low-cost options with Basic.
2014	Hay Disaster Benefit	Result of an internal forage review in 2011. Additional compensation when feed and transportation costs are high in a hay disaster.
2014	Enhanced Quality option	Result of an internal forage review in 2011. Program did not meet the needs of dairy and export hay producers.
2014	Harvest Flood Option	Result of an internal forage review in 2011. To provide Select and Basic Hay Insurance producers with coverage for flooding losses on insured coarse hay.
2014	Discount Surcharge System	Result of an internal forage review in 2011. Concern over high premiums. Would help keep premiums more affordable for some producers.
2013	Open Pollinated Silage Corn	Not only grown for grain but also for silage and grazing purposes.
2010	Pasture Days	Requested by the Manitoba Cattle Producers Association to compensate producers that are forced to remove livestock from pasture earlier than they normally would. To compensate for the additional cost supplementary feeding.
2007	Pasture Drought Weather Index (removed 2010)	Was developed for producers that do not want to insure their tame hay (a requirement of Pasture Insurance). Basis risk was a source of producer complaints. The program needed more weather stations to be relevant. There was no apparent strong customer demand for expansion of the program.
2004	Pasture Insurance	To provide additional insurance coverage for forage producers to cover potential shortfalls in summer grazing capacity.
2002	Forage Restoration	To provide forage producers with compensation from excess spring moisture.
2000	Greenfeed Insurance	To provide coverage to producers that grow annual crops for greenfeed that are cut, baled, or silaged.
1985	Forage Seed	To provide financial assistance to producers of forage seed when they experience a significant production shortfall.
1984	Livestock Feed Security Program (removed 1994)	To provide forage coverage based on area yields. Very costly to administer. Requires monitoring producers to determine yields for an area. Low participation, program was in deficit.

1981	Forage Establishment Program	To cover losses on eligible forage crops during the period from seeding to establishment.
1978	Silage Corn	To provide coverage on corn intended to be used as silage feed.
1975	Hay Insurance (Tame and Native)	To provide protection for producers who experience a forage production shortfall due to designated perils.

FIGURE 1 – TAME HAY VS CORN PRODUCTION IN MANITOBA

Manitoba

Manitoba Feed Production (tonnes)



Based off of 2016 Census data corn silage acres were 121 K and alfalfa/grass/hay was 1.515 million acres or 12.4 x larger. Corn silage was 115 K in 2018 & 127.6 K in 2019.
Corn silage is a significant forage contributor but perennial forages still make up the biggest source of forage for Manitoba livestock producers.

Source: Statistics Canada, 32-10-0129-01

Manitoba Agriculture, Foresight and Analysis-2019-09-05

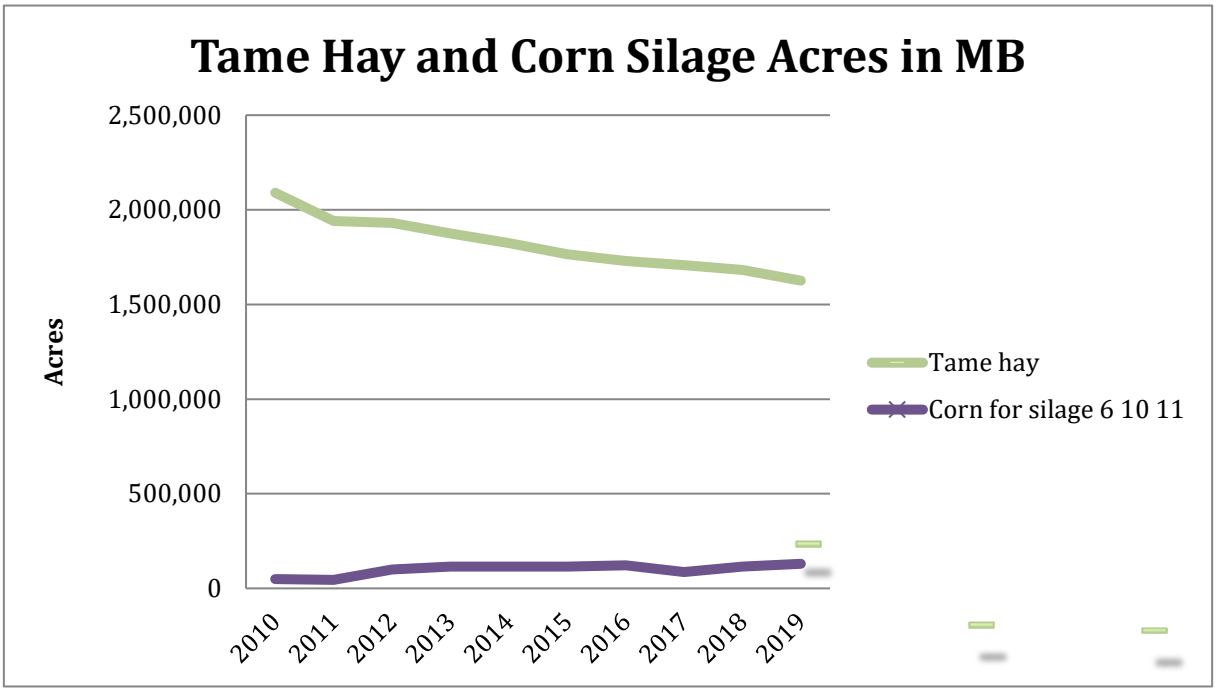


FIGURE 2 - BEEF CATTLE NUMBERS IN MANITOBA

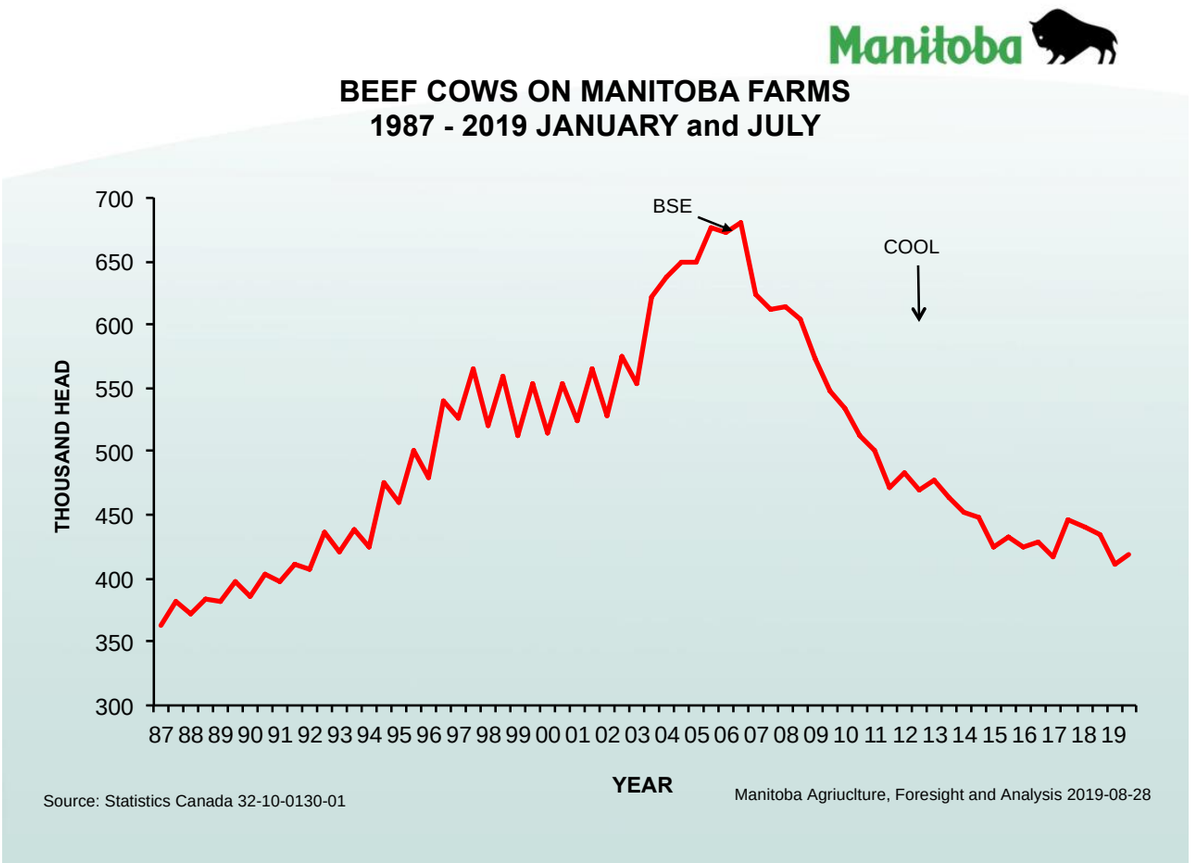


FIGURE 3 - PASTURE ACRES IN MANITOBA

Land use, 2016

Released: May 10, 2017

	Tame or seeded pasture			Natural land for pasture		
	farms reporting	acres	hectares	farms reporting	acres	hectares
Canada (1)	**54,092**	**12,556,190**	**5,081,309**	**72,075**	**35,240,524**	**14,261,332**
Manitoba (PR460000000)	**3,636**	**928,900**	**375,912**	**7,135**	**3,377,043**	**1,366,641**
Agricultural Region 1, Manitoba [CAR460100000]	272	100,889	40,828	547	239,445	96,900
Agricultural Region 2, Manitoba [CAR460200000]	513	147,403	59,652	986	414,114	167,586
Agricultural Region 3, Manitoba [CAR460300000]	450	108,485	43,902	713	276,119	111,741
Agricultural Region 4, Manitoba [CAR460400000]	261	79,107	32,013	378	140,213	56,742
Agricultural Region 5, Manitoba [CAR460500000]	166	53,101	21,489	249	98,634	39,916
Agricultural Region 6, Manitoba [CAR460600000]	323	110,583	44,751	706	731,966	296,216
Agricultural Region 7, Manitoba [CAR460700000]	388	85,138	34,454	719	304,059	123,048
Agricultural Region 8, Manitoba [CAR460800000]	399	55,206	22,341	814	173,118	70,058
Agricultural Region 9, Manitoba [CAR460900000]	256	37,935	15,352	673	127,376	51,547
Agricultural Region 10, Manitoba [CAR461000000]	95	16,945	6,857	235	97,479	39,448
Agricultural Region 11, Manitoba [CAR461100000]	176	27,637	11,184	323	108,424	43,878
Agricultural Region 12, Manitoba [CAR461200000]	337	106,471	43,087	792	666,096	269,559

Source:
Statistics Canada, 2016 Census of Agriculture, Farm and Farm Operator Data, catalogue no. 95-640-XWE.

Dictionary:
http://www5.statcan.gc.ca/bsolc/olc-cel/olc-cel?catno=98-301-X&lang=eng
http://www12.statcan.gc.ca/census-recensement/2016/ref/dict/az1-eng.cfm