



 REPORT

Growing in a Riskier World

Exploring New Insurance Tools for
Canadian Agriculture

JUNE 2026



Smart Prosperity
Institute



FARMERS
FOR CLIMATE
SOLUTIONS

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Executive summary

New insurance solutions are needed to help Canadian farmers manage their increasing exposure to climate and market-related risks. Recent years have shown how extreme weather events, such as intense drought conditions in the Prairies, can impose significant costs on farmers, governments and taxpayers. These include skyrocketing payouts from publicly funded insurance programs, the increasing frequency and severity of crop or livestock losses and higher insurance premiums from growing risk exposure in agricultural production.

Beneficial management practices (BMPs) are proven to lower the risk of insurance claims over time, improve farm profitability and support progress on Canada's environmental performance targets. Yet the adoption of more resilient practices often comes with short-term risks and financial uncertainty for farmers. These challenges are exacerbated by the design of agricultural insurance programs in Canada, which generally do not recognize and reward BMP adoption, even when these practices measurably reduce the sector's exposure to climate-related risks.

The Smart Prosperity Institute (SPI) and Farmers for Climate Solutions (FCS) are exploring an opportunity to modernize Canada's approach to agricultural risk management. Together we are researching and piloting new insurance-based tools that support resilient transitions in Canadian agriculture (see [Table 1](#)). Several of these have proven effective in international contexts. They are critical and underused levers for addressing the growing risks facing Canada's agriculture and agri-food sector.

Innovative insurance tools are a natural fit for addressing the complexity of the sector's challenges for two reasons. First, insurance agencies possess the institutional infrastructure, necessary data systems, and actuarial expertise to design cost-effective insurance tools. These tools can de-risk BMP adoption by protecting farmers against short-term changes in yield or profitability. Second, insurers have a direct financial stake in reducing farm-level risk exposure. As primary payers of climate-related losses, insurers have an incentive to enable the adoption of proactive risk-reduction measures that lower the frequency and severity of climate-related impacts on farms. This report examines two insurance innovations: transitional coverage and insurance premium incentives.

Transitional coverage, including BMP insurance and production warranties, can play a significant role in accelerating resilient transitions on Canadian farms (see [Table 1](#)). These tools provide farmers with a crucial financial safety net by insulating them against short-term yield variability or income loss, de-risking their adoption of resilience-building BMPs.

Insurance premium incentives, including discounted premium rates and coverage "top-ups" (i.e., enhanced coverage at no cost) embed the beneficial outcomes of adopting resilient practices into the upfront pricing of insurance products (see [Table 1](#)). These approaches can help de-risk on-farm transitions by creating a comparatively low-cost, long-term financial incentive for farmers that can sustain practice adoption, while recognizing that the use of certain practices reduces risk exposure for farmers, governments and insurers over time.

When combined with targeted cost-share programs or sustainable capital solutions, these innovative insurance tools can offer a coherent, system-level approach to modernizing Canada’s portfolio of agricultural risk management programs. [Table 1](#) below summarizes the key characteristics of these tools, and each is explained further in [Sections 2](#) and [3](#).

Table 1. Key characteristics and implementation considerations for innovative insurance tools.

Tool(s)	Strategic value	Delivery agent	Applicability	Limitations
Transitional coverage				
BMP insurance	Fill gap in current programming, new cost structure for adoption programs (i.e., only pay for loss), cost-effective design potential, public-private collaboration	Public or private insurance providers	Well-suited to farm input management BMPs (e.g., fertilizer), additional layer of protection complementing existing BRM suite, used by new adopters	Does not cover upfront costs, willingness to pay for premiums/warranty = barrier, additional indemnity exposure and potentially high premium rates
Production warranty		Value-chain actors, NGOs, governments		
Insurance premium incentives				
Premium discounts	Link BMP adoption and risk reduction, keep pace with international peers, long-term and cost-effective incentives	Public or private insurance providers	Well-suited to BMPs reducing indemnity risk, add-on to existing insurance policies, used by early and expanding adopters	Do not cover upfront costs, relatively small-sized incentives, initially complex to assess or implement (i.e., disentangle BMP impact and actuarial outcome)
Top-ups				

To bring these tools to life on Canadian farms, our research identified three paths that governments and insurers can explore to kick-start their development:

- **Build a Canadian evidence base linking BMP adoption and reduced risk exposure.**
Governments and insurers could prioritize developing robust, causal evidence on how BMPs reduce production risk and indemnity costs. This includes:
 - leveraging existing crop insurance datasets to quantify the impact of risk-reducing BMPs on insurance payouts,
 - mobilizing applied academic and on-farm research capacity to fill critical data gaps and validate findings under real-world conditions; and

- modernizing crop insurance data collection systems to identify, track and report emerging BMP-risk links over time.
- **Redesign insurance products to reward proactive risk mitigation.**

This includes:

 - using data that links BMP adoption and indemnity risk to identify priority risk profiles for proactive risk management tools,
 - expanding premium incentive pilots under the Sustainable Canadian Agricultural Partnership mandate to other practices, production systems, regions and insurance premium incentive tools; and
 - incorporating successful insurance premium incentive pilots into mainstream insurance products to incentivize and reward the adoption of BMPs that reduce indemnity risk.
- **Pilot new insurance innovations that share the risk of practice adoption.**

This includes:

 - establishing a dedicated Risk Management Innovation Fund that enables transitional insurance pilots and coordinates coverage across public and private actors,
 - including a mandate in the next Agricultural Policy Framework to pilot new insurance innovations including the design and implementation of transitional coverage tools, and
 - integrating insurance innovations into existing risk management and BMP-support programs. This could enhance the support landscape and synergize provincial cost-share initiatives and sustainable capital solutions to holistically address the barriers to BMP adoption.

Canada's agriculture and agri-food sector stands at a critical juncture, requiring a fundamental shift in how climate and market risks are managed. Incremental adjustments to existing programs are no longer sufficient. Advancing research to design and deploy the next generation of de-risking tools could accelerate the new and sustained adoption of resilient farming practices that strengthen farm profitability, reduce the sector's overall risk exposure and build resilience in our national food system.

By embedding proactive risk reduction into agricultural risk management programs, Canada could transition away from an increasingly costly, reactive risk management system to one that prioritizes prevention. This transition could reduce long-term public costs and position Canadian agriculture as more competitive, investable and resilient in the face of growing global uncertainty.

1 Introduction

Recent years have underscored the risks Canadian farmers are facing. Trade and infrastructure disruptions, volatile market prices exacerbated by geopolitical instability, and the increasing frequency and severity of extreme weather events are creating a more precarious production environment.ⁱ These pressures have contributed to escalating payouts for publicly funded business risk management (BRM) programs.ⁱⁱ For instance, Manitoba's crop insurance payments increased more than 650% in one year—from \$62 million in 2020 to \$469 million in 2021—driven largely by intense drought conditions.ⁱⁱⁱ

Studies show that beneficial management practices (BMPs) support sector-wide competitiveness by insulating farmers from a diversity of production risks, erratic weather patterns and market disruptions. These practices do this by supporting healthier soils, enhancing biodiversity, improving input efficiency and reducing operating costs.^{iv} In most cases, successful adoption of these practices results in more profitable farms, a more resilient agri-food sector and lower public spending on BRM programs.^v For example, the Agriculture Financial Services Corporation in Alberta identified a correlation between higher levels of soil organic carbon (a key outcome of adopting several soil health BMPs) and lower crop insurance indemnities, with cost savings estimated up to \$25 per acre.^{vi}

Linking BMP adoption and resilience outcomes

As extreme weather events become more frequent and markets more unpredictable, BMPs are emerging as practical ways to reduce production risk, lower input costs and stabilize farm revenues. A growing body of evidence shows that widespread BMP adoption can reduce production risks, lower the cost of crop insurance and strengthen the long-term competitiveness of Canadian agriculture.^{vii}

BMPs, like cover crops and reduced tillage, and metrics, like soil organic matter or soil carbon levels, have been a focal point of proactive risk management research. There is a strong research base to quantify the reduction in insurance risk when farmers adopt these practices. For example, research in Ontario has shown that—during times of excessive heat and drought—long-term cover cropping (i.e., 10 times in 13 years) can increase corn yields by 59 bushels per acre.^{viii} Similarly, in the Midwestern United States, Aglasan et al. (2024) found that a 1% increase in the acreage of cover crops in this region could result in over US\$60 million in indemnity cost savings per year, demonstrating the connection between BMP adoption and lower insurance payouts.^{ix}

Despite their clear long-term benefits, the adoption of these practices can also present short-term financial and operational risks and increased variability for farmers, which hinder their sustained uptake.^x Concurrently, the available risk management programming remains largely reactive, absorbing losses after they occur, rather than proactively enabling a transition to lower-risk, higher-resilience production systems.

Traditional risk management programs, such as multi-peril crop insurance, are essential for responding to weather-related losses, but their current design is not equipped to meet the evolving risk landscape. Existing programs do not adequately address the unique financial and operational risks farmers face when adopting new resilience-building practices in the short-term; nor do they proactively encourage the adoption of practices that limit underlying risk exposure in the long-term.

Under the Sustainable Canadian Agricultural Partnership (SCAP), provincial insurance providers have begun piloting insurance tools that encourage proactive risk management on a small scale. Some provinces are piloting the use of insurance premium discounts related to soil health practices or metrics.^{xi} These pilots are a promising step, though there is an opportunity to expand the mandate to other production systems and practices, and pilot the use of other innovative insurance tools, as outlined in [Section 4](#).

There is also growing consensus from farmers and across the sector calling for the modernization of risk management programs. A 2024 poll by Farmers for Climate Solutions (FCS) found that 85% of the 858 farmers surveyed identified more technical supports, transition-targeted financial incentives and improved risk management tools as being “very important” for trying new practices on their farms.^{xii} Our research, from 2022, identified new transitional insurance tools, like BMP insurance, as a key opportunity for de-risking and promoting the adoption of efficient nutrient management practices.^{xiii} More recently, several other organizations, including Farm Management Canada and the Canadian Agri-Food Policy Institute, have called for the modernization of BRM programs to support farmers in adopting resilience-building BMPs.^{xiv} The Green Budget Coalition has further identified insurance and financial products that target transitional risks during BMP adoption as an underused opportunity to support resilient outcomes on Canadian farms.^{xv}

In response, the Smart Prosperity Institute (SPI) and FCS are exploring the practical and financial feasibility of innovative insurance tools to support the adoption of resilience-building BMPs. Grounded in ongoing engagement with farmers, insurers, financial institutions, governments and value-chain actors, the objectives of our work are to:

- identify key design, implementation and scaling considerations for insurance tools to de-risk BMP adoption on Canadian farms; and
- highlight opportunities to integrate these tools to reduce costs and support the modernization of Canada’s approach to agricultural risk management.

The Nature Investment Hub supported initial phases of this project with corporate and financial sector engagement.

To evaluate the utility of different insurance innovations, we applied a targeted literature review and an inventory analysis of key design components, expected outcomes and implementation challenges. We engaged more than 40 stakeholders, including farmers, financial institutions, provincial and federal government agencies, program administrators, academics and agronomists. Their input helped ground our analysis in a range of sector perspectives on the value of these insurance innovations. It also

informed our assessment of the practical feasibility of implementing them in Canada. This analysis provided the scope for the types of tools evaluated in this report, which were assessed for their value, applicability, cost-effectiveness, limitations and available research. Based on these results, the insurance tools examined in this research are:

- **transitional coverage products** that protect farm profitability during the adoption of new practices (e.g., BMP-linked insurance products, profit-based coverage models or warranties); and
- **insurance premium incentives** that reward farmers for implementing proactive risk management efforts (e.g., reducing costs to purchase insurance or increasing coverage levels at no additional charge when risk-reducing practices are used).

This report clarifies the value and potential of deploying insurance tools for building resilience on Canadian farms. It outlines the case for innovative insurance tools as core components of the next generation of cost-effective risk management programming.

The report is structured as follows:

- **Section 2** introduces insurance innovations that improve resilience, describing their strategic value to sector and giving example programs.
- **Section 3** evaluates these tools' practical application for insurers, including their applicability, cost-effectiveness, limitations and future research needs for success in the Canadian context.
- **Section 4** identifies actionable pathways for policymakers and insurers to design, pilot and scale insurance innovations in Canada.

This report's findings represent the first phase of a broader research initiative to support the resilience, competitiveness and long-term profitability of Canadian farms and inform the next Agricultural Policy Framework. Future project publications will provide additional details on the practical and financial feasibility of the selected tools. These will showcase the results of several economic analyses and share on-farm results and key findings from Canadian pilots. They will provide targeted recommendations, highlighting opportunities, and the growing urgency for advancing the implementation of these tools in Canada.

2 Insurance innovations to improve resilience

Understanding how proactive insurance tools can play a role in supporting the sector's competitiveness and long-term resilience will be key to reducing public costs, mitigating farm losses from extreme weather events and stabilizing, if not improving, farm profitability.^{xvi} By helping farmers better manage risks and protect their income during short-term adoption periods, these tools can reduce the financial volatility of production and support more consistent returns.

Research from the Environmental Defense Fund (2025) and AXA Climate (2025) identified several insurance innovations as effective tools for supporting resilient on-farm transitions. They include parametric insurance, production warranties, insurance that offers transitional coverage for BMP adoption and the incorporation of premium discounts for adopting practices that reduce farm-level risk exposure.^{xvii}

Informed by extensive engagement and supplemental analysis, our research focuses on insurance tools that provide transitional coverage, such as BMP insurance and production warranties, and insurance premium incentives, such as discounts and top-ups. These tools aim to address the increased risks and variability farmers experience during the adoption of BMPs and reward them for proactive risk mitigation.

International evidence shows that transitional coverage and insurance premium incentives can de-risk BMP adoption, are cost-competitive with traditional support mechanisms and can encourage sustained BMP adoption.^{xviii} These tools can also be profitable for insurers if designed correctly, as explored in [Section 3](#) of this report. When deployed alongside existing BRM programs, these tools can help mitigate upfront transitional risks while providing farmers with long-term, low-cost incentives to reward and sustain their adoption of BMPs over time.

Studies in Alberta and the United States confirm that proactively promoting risk reduction efforts on farms can be highly beneficial for insurance agencies by reducing their exposure to indemnity payments. In Canada, Alberta's Agriculture Financial Services Corporation estimated insurance cost savings of \$25 per acre in areas with higher soil organic carbon, a common outcome of many soil health BMPs (e.g., reduced tillage and cover crops).^{xix} Kane et al. (2021) in the United States, found that during times of extreme drought, corn-growing areas with higher soil organic matter produced roughly 33 more bushels of corn per acre and they estimated a 36% reduction in crop insurance payouts.^{xx}

Transitional coverage and insurance premium incentives can also create opportunities to leverage new private-sector funding and partnerships to support on-farm innovation. This lowers pressure on public expenditures and strengthens public-private alignment around long-term environmental and economic sustainability objectives.^{xxi}

Insurance innovation: An opportunity for public-private collaboration and coordination

Public and private insurers are well-positioned to research, develop, redesign and administer insurance innovations that support on-farm resilience. Agricultural production insurance in Canada is primarily administered through publicly funded provincial insurance agencies. Private insurance agencies also provide coverage for specific perils (e.g., hail insurance) or offer levels of coverage that are tailored to distinct farming operations. The development of innovative insurance tools that help meet the agriculture sector’s evolving risk context is an opportunity for public- and private-sector insurers to work together.

Collaboration between public and private insurers to develop and deploy insurance innovations is strategic, especially in the context of adding research and delivery capacity to smaller provincial insurance providers with limited resources. Public and private insurers can also co-fund payout pools to lower transitional coverage premium costs. Clearly defining the roles of public and private insurers in innovating and delivering new tools will unlock opportunities for public-private collaborations in the crop insurance industry, amplifying the impact of insurance innovation research.

Table 2 summarizes the role of the selected tools in supporting resilient transitions, highlighting their core functions, value and example programs.

Table 2. Key characteristics and implementation considerations for innovative insurance tools.

Innovation	Description	Role in resilient transitions	Value	Example programs
Transitional coverage	Payment only in event of loss when adopting new practice, only 3 to 5 years of coverage	Supports BMP trialling phase, promotes new practice adoption	Protects farmer profit, less practice uncertainty, environmental performance	PACE, N-risk insurance, Ecological Goods and Services pilot
Insurance premium incentives	Premium rate savings matched with risk profile, applied annually	Promotes incremental practice expansion, incentive to sustain change over time	Rewards proactive efforts, reduced farm indemnity exposure, environmental performance	Cover crop insurance premium rebate, provincial premium discount pilots (e.g., AB, ON, MB)

Building on this comparative overview, the sections below examine each insurance innovation in detail, outlining the specific risks they address, their implications for resilience, strategic value and how they have been applied in other jurisdictions.

2.1 Innovation #1: Transitional coverage

Transitional coverage for BMP adoption directly addresses one of the most significant adoption challenges for farmers: the short-term risk of lower profitability or yields when implementing new practices. Studies show that by providing targeted, conditional protection during the transition period (i.e., payment only in the event of a loss), these tools can help promote sustained practice change, improve environmental performance and act as a cost-effective alternative to traditional incentives.^{xxii}

Transitional coverage was identified through our research and engagement as a leading innovation for supporting resilient transitions. Novel tools that offer transitional coverage include BMP insurance and production warranties. See below for a comparison of these two tools.

The difference between BMP insurance and a production warranty

BMP insurance and production warranties address the risk of uncertain financial or agronomic outcomes (such as lower crop yield) during practice adoption, but they differ in terms of the actors involved and the financial model used for delivery.

BMP insurance is an actuarially sound product (i.e., it collects enough premiums to offset potential payouts) delivered by an insurance agency. Like conventional crop insurance, it relies on risk assessments to determine the viability of offering different coverage options, appropriate premium rates and suitable indemnity cost structures. Farmers can then opt into specific coverage options, with payouts triggered based on predefined loss conditions.^{xxiii}

Production warranties, by contrast, are often offered by agricultural retailers (e.g., Bayer, BASF and local co-operatives), governments or through environmental programs run by non-profits. They are not required to be actuarially sound and may use pre-set reimbursement rates to manage financial risk exposure. These programs may ask farmers to pay a small per-acre fee upfront to gain access to the warranty. For instance, under the Innovation Assurance program in the United States, farmers were charged US\$2 to \$5 per acre for coverage in 2022.^{xxiv}

In practice, these two approaches represent different, and potentially complementary, de-risking tools. BMP insurance offers scalable, market-based risk coverage, whereas production warranties provide flexible, program-driven support for early-stage adoption or where data limitations constrain actuarial pricing.

One of the most prominent examples of transitional coverage for BMP adoption is the BMP Challenge in the United States. It was co-led by the insurance agency Agflex and the American Farmland Trust between 2000 and 2014. The program used profit-based coverage models, with farmers contributing back to the program when BMP adoption increased their profits, demonstrating a shared risk and reward model.^{xxv} The program enrolled almost 13,000 acres and reduced nitrogen applications by over 228,000 pounds from 2010 to 2013. The BMP Challenge found that 79% to 87% of its participants planned to sustain the use of their BMP, or a modified version of it, after the end of the coverage period. These results signal the potential for insurance-based de-risking tools that offer transitional coverage to continue driving long-term behavioural changes beyond the initial support period.^{xxvi}

BMP insurance and production warranties insulate farmers from the uncertain outcomes of adopting resilience-building practices by covering the risks of doing so. These risks are compounded by increasing uncertainty in agricultural production due to the higher incidence of market volatility, climate shocks and geopolitical disruptions. By protecting profits and offering farmers a financial safety net, these new tools add value to the sector to ensure long term stability and competitiveness.

2.1.1 Strategic value for the sector

BMP insurance and production warranties can offer significant strategic value for farmers, insurers and governments by:

- **Farmers:** filling a gap in existing support programming and targeting short-term financial uncertainty during practice change; and
- **Insurers and governments:** countering the rise in public spending with scalable financial tools that only make payments in the event of adverse outcomes from BMP adoption.

These tools also create strategic value in scaling resilient farming practices by engaging a wider range of agri-food value-chain actors, including agricultural retailers, insurance agencies and financial institutions. While drawing in private-sector actors and blending capital will better share the burden of resilient transitions, some insurance innovations will require more coordination and clear communication to be implemented effectively. For example, BMP insurance needs more coordination than production warranties, especially when blending public and private funding. See additional discussion in [Section 3](#).

BMP insurance and production warranties are designed to operate alongside, but independently from traditional agricultural insurance programs.^{xxvii} When used with other de-risking tools and grants, they can provide farmers with an extra layer of tailored risk-management support for BMP adoption. The strategic value of these tools is clearest in practice, where public and private actors have used BMP insurance and production warranties to address specific adoption risks.

2.1.2 Example programs

In addition to the BMP Challenge mentioned above, there is a growing global precedent for BMP insurance and production warranties. Public and private actors are deploying these tools to support BMP adoption and reduce the on-farm transition risks of BMP adoption.

- A notable publicly funded example is the Post-Application Coverage Endorsement (PACE), offered by the USDA’s Risk Management Agency. This practice-based insurance provides coverage for farmers who use split fertilizer applications and face yield losses when weather conditions prevent a second application. This de-risks the adoption of a BMP known to reduce nutrient runoff and emissions while supporting continued farm productivity.^{xxviii}
- Private insurers also see promise in BMP insurance and production warranties as commercially viable tools for managing risks and building long-term resilience. In Australia, Willis Towers Watson currently offers N-Risk Insurance to sugarcane farmers, covering yield losses due to reduced fertilizer applications.^{xxix} Private retailers have also used the production warranty model to motivate consumers to try new products. In the United States, Advanced Acre Rx and Innovation Assurance offer financial protection to farmers trialling new crop management plans and products, de-risking on-farm experimentation.^{xxx}
- Public-private collaborations further illustrate the potential and scalability of these two approaches. In Canada, the Prince Edward Island Ecological Goods and Services Pilot (2007–2009) incorporated a production warranty with the support of government funding, academic institutions, conservation associations and agri-food companies. This pilot led to the launch of the province’s first publicly supported Alternative Land Use Services program, highlighting the potential of production warranties to catalyze long-term policy and program development.^{xxxi}

In addition to insulating farmers from short-term transition risks, insurance programs can be structured to reward practices that reduce long-term production risk and insurer exposure. Insurance premium incentives that adjust premium pricing or enhance insurance coverage for the adoption of specific BMPs represent a complementary innovation with the potential to support resilient transitions on Canadian farms.

2.2 Innovation #2: Insurance premium incentives

Insurance premium incentives are reduced premium costs or higher coverage rates (i.e., a top-up) that are offered to farmers who use specific BMPs or show an environmental outcome, like higher-than-average rates of soil organic carbon. By reducing the cost of premiums or creating more attractive terms, these tools create a sustained reward structure for farmers that links proactive risk mitigation with reduced insurance claims. Studies found that insurance premium incentives often offer modest compensation to farmers on a dollar-per-acre basis, but that they still play a crucial role in incremental and sustained practice expansion.^{xxxii} When developed in an actuarially sound manner, these incentives can also be delivered at little-to-no additional cost to insurers, which further contributes to reducing the total costs for de-risking programs.

2.2.1 Strategic value for the sector

There is a growing recognition in Canada’s agricultural policy landscape of the potential for insurance premium incentives to encourage the adoption of resilience-building BMPs, while also reducing long-term indemnity costs. Provincial pilots are already underway via a SCAP mandate. We expect these will further demonstrate the long-term value of promoting proactive risk management through the AgriInsurance program.^{xxxiii} However, these pilots remain limited in scale and scope.

Expanding these pilots nationally and broadening the range of risk metrics beyond soil health will be essential for modernizing BRM programs in Canada. Establishing clear causal links between BMP adoption and reduced risk exposure will enable Canadian agriculture to better align insurance design with resilience objectives. It will also help the sector keep pace with global competitors that have been instituting premium incentives for several years (i.e., the United States).

One benefit of insurance premium incentives is that they reward early practice adopters, filling a critical gap in the current incentive landscape and motivating them to continue their resilience-building efforts.^{xxxiv} Given that farm-level resilience tends to build over time—typically taking 5 to 10 years of consistent soil health-practice adoption to detect a change in soil organic carbon levels—these longer-term incentives are vital to sustain adoption and maximize long-term outcomes.

2.2.2 Example programs

Examples of insurance premium incentive programs include well-established offerings in the United States and pilots in Canada. Building on earlier references, the following examples are summarized here to support a more detailed look at design features relevant to premium incentive programs.

- One of the most established examples of an insurance premium incentive is the Cover Crop Insurance Premium Rebate program in the United States. Initially, the program was funded by the USDA for the 2021 and 2022 growing seasons and delivered through regional agricultural agencies and insurance providers. Certain states continue to offer a US\$5-per-acre rebate on crop insurance premiums for fields planted with cover crops, illustrating a growing awareness of the link between enhanced environmental stewardship and lower risk exposure for farmers, governments and insurance providers.^{xxxv}
- In Canada, provincial insurance providers are exploring the use of premium discounts to support BMP adoption. As part of the Sustainable Canadian Agricultural Partnership, Alberta’s Agriculture Financial Services Corporation launched a premium discount pilot in 2025. This pilot encourages the adoption of BMPs that measurably improve soil organic carbon levels to reduce production risks and enhance drought resilience on farm.^{xxxvi} Agricorp, in Ontario, released a similar program related to cover crops in potato systems, featuring a 5% discount on insurance premiums.^{xxxvii} Finally, the Manitoba Agricultural Services Corporation is offering a higher discount of 15% on Forage Establishment insurance premiums for perennial forage crops.^{xxxviii} These examples show growing recognition of the role that BMPs play in reducing a farmer’s risk exposure and the potential to lower BRM payments over time.

Together, these examples show how premium incentives can be embedded in insurance programs to reward BMP adoption while functioning as a proactive risk management tool. They highlight the potential to reduce risk exposure for producers and governments while strengthening agricultural resilience over time.

This section examined the strategic value of insurance innovations in strengthening resilience among farmers and insurers, drawing on examples from other programs. The next section turns to how transitional coverage and insurance premium incentives may be applied in Canada to advance a more resilient, profitable and competitive agricultural sector.

3 Considerations for insurers

Insurance agencies are a natural fit for addressing the complex and evolving challenges facing Canadian farmers for two key reasons:

1. Insurance agencies have institutional infrastructure, data and actuarial expertise to design products that protect farmers against changes in yield or profitability, including when adopting new practices; and,
2. Insurers are direct beneficiaries of reducing farm-level risk exposure that also serves to reduce their future risk exposure to rising insurance claims and payouts. This is a natural incentive for insurers to promote the adoption of proactive risk reduction measures.

This section moves from concept to considerations for implementing the tools described in the previous section, assessing their applicability, cost-effectiveness, limitations and the future research needed to scale in Canada. [Table 3](#) summarizes the key findings, while the rest of this section takes a more practical and applied look at the implementation of each product innovation.

Table 3. Summary of implementation considerations for insurance innovations in Canada.

Tool(s)	Applicability	Delivery agent	Cost-effectiveness	Limitations
Transitional coverage				
BMP insurance	Well-suited to farm input management BMPs (e.g., fertilizer), additional layer of protection complementing existing BRM suite, used by new adopters	Public or private insurance providers	Program design-dependent, can deliver insurer and farmer profit, improved environmental performance	Do not cover upfront costs, willingness to pay for premiums/warranty = barrier, additional indemnity exposure and potentially high premium rates
Production warranty		Value-chain actors, NGOs, governments		
Insurance premium incentives				
Premium discounts	Well-suited to BMPs reducing indemnity risk, add-on to existing insurance policies, used by early and expanding adopters	Public or private insurance providers	Effective for sustained or incremental BMP adoption, actuarially calculated incentives delivered at little to no public cost	Do not cover upfront costs, relatively small-sized incentives, initially complex to assess or implement (i.e., disentangle BMP impact and actuarial outcome)
Top-ups				

3.1 Transitional coverage: BMP insurance and production warranty

BMP insurance and production warranties are examples of transitional coverage tools for BMP adoption. They play an important role in reducing the risk of uncertain outcomes from practice adoption by covering farmers' loss of yield or profit when adopting new practices. As mentioned, these tools can encourage the adoption of BMPs by providing farmers with a financial safety net during the on-farm experimentation phases, where impacts on productivity and profitability are most significant. They also provide real, farm-level trialling opportunities that help farmers determine how a new practice fits in their operation.^{xxxix} Integrating technical support into these tools can further strengthen their effectiveness by helping farmers trial new practices or products more confidently. This is shown to increase the likelihood of sustained adoption while reinforcing trust and building on-farm knowledge.^{xi}

It may also be strategic to engage the private sector more in smaller provinces, where public insurance operations have fewer available resources. This could fast track product development and generate more regionally targeted programs that align with the needs of the sector. Ultimately, the success of

these tools will hinge on their being co-designed with farmers to ensure they are practical, accessible and aligned with on-farm realities.

The following sections summarize some of the key considerations for insurers based on our research findings on the applicability, cost effectiveness, limitations and future research needs for BMP insurance and production warranties.

3.1.1 Applicability

Both tools are well-suited for practices that cost less to adopt and where the transitional impacts on profit and yield can be estimated with enough certainty to support an actuarial assessment.^{xli} Optimized nitrogen fertilizer management practices are an example of BMPs that are generally considered a good fit for transitional coverage.^{xlii} This is primarily due to weather variability and the perceived risk of forgoing maximum yields being the main drivers in suboptimal fertilizer applications.^{xliii} Using these tools to mitigate weather and yield uncertainty with practice adoption can reduce fertilizer costs, enhance profitability and reduce negative environmental impacts (e.g., emissions, leaching into water). In this case, transitional coverage tools help show that optimized nitrogen management is, on average, more profitable, and that alleviating short-term production risks is one of the keys to facilitating BMP adoption.^{xliv}

3.1.2 Cost-effectiveness

The cost-effectiveness of these tools can vary, pointing to the importance of careful program design to achieve higher profitability for farmers and insurance agencies alike.^{xlv} Research in the United States by Mandrini et al. (2026) found that BMP insurance policies for fertilizer reduction can deliver cost savings to farmers and profits to insurance providers of US\$14 and US\$10 per hectare, respectively.^{xlvi} This study concluded that BMP insurance models that off profit-based coverage, where premium rates are set at 50% of the cost-savings from reduced fertilizer rates, were more cost-effective than traditional yield-based coverage.^{xlvii}

Even when BMP insurance programs are more costly than traditional environmental support programs, they can deliver better environmental performance. In a study of the use of green insurance (a product similar to BMP insurance) to support pesticide reduction in French viticulture systems, Lefebvre et al. (2024) found that this innovative insurance approach achieved higher pesticide reduction rates, though the program was more costly than similar available ones.^{xlviii} The findings from Lefebvre et al. (2024) and Mandrini et al. (2026) highlight the ability of transitional coverage tools to meet the dual goals of cost-effective government programming and improving on-farm environmental outcomes at variable levels of cost-effectiveness.

In addition to promoting cost-effective programming, BMP insurance and production warranties allow for the blending of public funding and private financing. Public-private structures, such as leveraged social impact investments to establish indemnity pools, first-loss capital or co-invested revolving funds to manage premiums or indemnity pools, are potential options for catalyzing the implementation of

transitional coverage tools.^{xlix} In general, blended finance approaches can help manage development risk for public and private actors and facilitate coordination between parties.^l

However, one potential issue is that publicly funded crop insurers may perceive new private-sector transitional coverage products as encroaching on their market share, creating hesitancy around blending funding. This could be mitigated if the roles and responsibilities of public and private actors in designing and delivering transitional coverage for BMP adoption are defined. In either case, public and private insurance policies should be coordinated to prevent double indemnifying the same losses, ensuring the optimal use of available capital.

3.1.3 Limitations

Despite their potential, three key limitations must be considered when using BMP insurance and production warranty approaches to support resilient transitions on Canadian farms:

- **Limited ability to address upfront capital costs.** These tools are not designed to cover the upfront costs of adoption, which limits their suitability for supporting practices that require high upfront capital investments (i.e., practices that require the purchase of new equipment or investments in supporting infrastructure). This could be partially addressed by stacking additional de-risking tools, like sustainable capital solutions (see text box below) or pairing them with existing cost-share programs.
- **Constraints on the scope of insurable practices.** The scope of practices that these tools can cover with reasonable premiums, or warranty rates may be limited. As it stands, insurance premiums can skyrocket when actuarial assessments show high outcome variability or when required coverage levels approach 100% of yield or income levels.^{li} Even though insurers are only obligated to pay out in the event of a loss, they remain responsible for covering the entirety of realized losses in profit or yield incurred during adoption. Targeted practice selection, pairing coverage with technical support or coverage caps may be a partial mitigation solution.
- **Persistent participation barriers related to upfront premiums or fees.** Charging farmers a premium or additional fee to access coverage could be a significant barrier to participation if the costs exceed farmers' willingness to pay. Program design can help address these barriers by incorporating premium costs into profit coverage, ensuring farmers are compensated if practice outcomes do not offset the costs of adoption, or by establishing sustainably managed payment pools funded by an initial endowment to help reduce or fully subsidize farmer contributions over time.^{lii}

Overcoming limited access to capital: The role of sustainable capital solutions

Limited access to capital remains a critical barrier to trialling and sustained BMP adoption. This is particularly due to a lack of financing options that align with repayment capacity during initial BMP adoption and the long-term transition period.^{liii} Sustainable capital solutions, also known as enhanced or preferential loan products, can help overcome this barrier. They offer financing terms that better reflect the risk profile and cash flow realities farmers face during BMP adoption.

These solutions can be structured in a variety of ways, including discounted interest rates, extended grace periods or longer loan tenors.^{liv} These features can be offered and applied to new or existing loans, and structured to recognize the environmental benefits farmers provide by adopting BMPs and their long-term contributions to building farm resilience and reducing default risk.

In Canada, examples of sustainable capital solutions include Farm Credit Canada's Sustainable Capital Incentive Program and BMO's Greener Future Financing Program, both of which offer reduced interest rates for the adoption of BMPs.^{lv} In the United States, Mad Capital offers several sustainable capital solutions, such as Transition Loans. They allow farmers to align loan repayment schedules based on on-farm cash flows, recognizing that financial liquidity may vary throughout the adoption process.^{lvi}

To scale the use of sustainable capital solutions, more research is needed on the financial outcomes of BMP adoption, including their return on investment, impact on loan and default risk, and long-term influence on farm viability. Additional research is also needed to clarify appropriate loan terms that align loan products with farmers' needs during different phases of practice adoption and financial institutions' risk management requirements.

These limitations highlight the practical considerations of deploying BMP insurance and production warranties and identify areas for strategic program design and collaboration. Public investments will play a substantial role in advancing the design and implementation of these tools, ensuring they overcome the limitations listed above and align with existing programs. This also includes funding research and data infrastructure to establish links between BMP adoption and reduced risk profiles. It further involves providing initial funding for indemnity pools that help align premium rates with farmer willingness to pay. It also means ensuring policies can feasibly promote the use of practices that offer resilience benefits (i.e., mitigating barriers to adoption, such as high costs and agronomic uncertainties that drive up initial premium rates).^{lvii}

While these limitations shape how transitional coverage innovations can be applied in practice, they also highlight critical knowledge gaps that can be addressed through targeted research. Strengthening the evidence base for these tools will be essential to overcoming design constraints, expanding applicability and ensuring these tools support resilient transitions across diverse farming contexts.

3.1.4 Future research needs

Advancing BMP insurance and production warranties in Canada will require targeted research to strengthen the evidence base and inform program design. SPI's research is addressing several knowledge gaps and outstanding questions, including:

- surveying farmers on the relevance of novel insurance-based tools and program design preferences to inform tool application and pilot development,
- determining the kinds of support farmers require during the phases of adopting new farm management practices to clarify the value proposition of these new tools,
- identifying practices and production systems in Ontario that are best suited for BMP insurance and production warranties, with specific program design parameters to fit this context; and
- conducting risk modelling and analysis on the cost-effectiveness of transitional coverage for promoting the use of nitrogen management practices to achieve environmental performance goals and targets.

In addition to research on these topics, understanding the applicability of these tools nationally will require additional funding or resources that enable research in areas such as:

- mapping how novel transitional coverage tools fit in the existing suite of insurance policies and other programs that help support the adoption of BMPs. This would help clarify synergies, opportunities for program stacking and avoid duplicative use of public funds.
- expanding research on the types of practices and production systems best suited for transitional coverage tools to other provinces, aside from Ontario,
- working directly with an insurer or actuary to determine effective practice-production and system-region combinations based on actuarial data to enable more robust analysis and the development of a business case for insurers,
- engaging with farmers and insurers across Canada to clarify the utility of these tools, program design considerations and data requirements to ensure administrator and user needs are considered in business-case development for these new tools; and
- examining the cost-effectiveness of these tools for other practices in a variety of provinces to grasp their utility as fiscally sound policy.

Our analysis needs highlight that transitional coverage tools such as BMP insurance and production warranties have considerable potential for application in Canada. But their uptake requires careful program design, strong alignment with existing insurance and policy frameworks, continued engagement with farmers, and analysis on their cost-effectiveness. Expanding the evidence base for these tools across regions, practices and production systems will be critical to assessing their scalability and fiscal soundness in Canada's agricultural risk management landscape.

At the same time, transitional coverage represents only one approach to reducing risk and encouraging BMP adoption. The following section examines insurance premium incentives, a complementary category of insurance innovations that influence farm-level decisions and risk exposure through pricing mechanisms embedded in existing insurance policies.

3.2 Insurance premium incentives: Discounts and top-ups

Insurance premium incentives can also take multiple forms, including discounted premium rates or top-ups (i.e., enhanced coverage options at no additional cost) for existing insurance policies (e.g., multi-peril crop insurance). Discounts match reduced risk exposure with lower premium rates, while top-ups provide increased coverage (e.g., paying for 80% yield coverage policy but receiving 90% coverage at no additional cost). Top-ups have the added benefit of providing extra protection against uncontrollable circumstances, insulating farmers from climate risks that are beyond the ability of BMPs to mitigate.

Both tools can embed different types of incentives into existing or newly designed insurance policies. This creates a reward structure that can enable the adoption or expansion of practices that help reduce long-term risk exposure to farmers and insurers.

Insurance premium incentives currently provide only small-to-modest cost savings for farmers, and the total value of these incentives remains low across Canada. Under their current structure, premium discounts and top-ups may provide a consistent benefit to farmers or be used as an alternative approach to encourage sustained practice adoption. For example, the AgrilInsurance premium discount pilots have ranged from 1% to 15% of the premium price for multi-peril crop or forage insurance.^{lviii} Higher discounts or top-up rates offered through public-private partnerships are identified as one possible solution to increase the value of the incentive being offered. This has the added benefit of getting value-chain actors involved and providing additional capital in exchange for the ability to make environmental claims.^{lix}

The sections that follow describe considerations for insurers, including contexts where insurance premium incentives are applicable, their cost-effectiveness compared to other programs, limitations in their use and suggested areas for future research to advance their use in Canada.

3.2.1 Applicability

Given their relatively small per-acre value, insurance premium incentives are most applicable in situations where the goal is to promote an incremental approach to adoption, to encourage expanding existing practices or reward sustained practice adoption. This sustained reward structure is particularly important because many resilience outcomes from BMPs accrue over several years, making ongoing incentives critical for retaining early adopters and reinforcing long-term risk-reducing behaviours. Studies by Irvine et al., (2024) and Sawadgo (2024) reinforced these assumptions with similar findings in their studies in the United States (see next section).^{lx}

Premium discounts and top-ups are likely to be more applicable in production systems with high insurance premiums or where supporting practices have lower ongoing management costs. For example, experience from Ontario suggests that a 5% discount on potato premiums for cover crop use at the 90% coverage level creates an incentive of \$4.27 per acre.^{lxi} However, applying the same 5% discount to the 90% coverage level for corn premiums only creates an incentive of about \$0.55 per acre.^{lxii} Conversely, a top-up on corn premiums from 80% to 90% coverage would represent a \$4.73

incentive per acre.^{lxiii} While the top-up approach can generate higher incentives, more information is needed to understand how changes in coverage levels would impact the actuarial soundness of the insurance program.

Delivering these tools effectively requires the right institutional partners. Insurance providers are the natural delivery agents for premium discounts and top-ups. They have actuarial data and modelling capacity to estimate appropriate discount or top-up rates that reflect the risk-reducing benefits of BMP adoption. Additionally, when the incentives are actuarially calibrated, they can be offered at little or no additional cost to the insurance agency, signaling substantial potential for their cost-effectiveness as a policy instrument.

While design considerations and delivery agents shape insurance premium incentive possibilities, their relevance ultimately depends on whether they deliver meaningful outcomes relative to their cost. Assessing cost-effectiveness is therefore essential to understanding the role these tools can play alongside other BMP support programs. The next section reviews evidence from existing programs to evaluate the extent to which premium incentives achieve sustained and additional BMP adoption and cost-effectively reduce risk exposure.

3.2.2 Cost-effectiveness

The cost-effectiveness of insurance premium incentives lies not in payment size alone, but also in their capacity to support persistent and incremental BMP adoption relative to conventional programming. One of the longest-running examples of an insurance premium incentive is Iowa's cover crop premium discount program, which has been used to encourage sustainable practice adoption. This program is not actuarially sound. It offers a flat-rate payment of US\$5 per acre, rather than calculating the insurance premium discount relative to the proportion of insurance risk the adoption of the practice could mitigate.

An evaluation of this program by Sawadgo (2024) found that many farmers entering the program had already adopted cover cropping to some degree. However, the premium discount played an important role in enabling participants to maintain and expand the number of acres in cover crops over time. The study determined that the premium discount led to an 11% increase in cover-cropped acres among participants, and if scaled nationally, could lead to an additional 1.3 million cover-cropped acres. Even after adjusting for additionality concerns (i.e., recognizing that some adoption would have occurred without the incentive), the insurance discount program was deemed cost-effective, achieving a similar cost per unit of adoption compared to equivalent cost-share programs for the same practice.^{lxiv} These results provide quantitative evidence that insurance premium incentives can support sustained BMP adoption and expansion at cost-competitive rates when compared to traditional programs.

Complementing this evidence, Irvine et al. (2024) examined why the cover crop premium discount programs in Iowa, Illinois and Indiana may be cost-effective despite lower per-acre payments than cost-share programs. Since the per-acre payment is considerably lower than traditional cost-share amounts (e.g., US\$ 5 per acre vs. US\$ 40–50 per acre), the authors concluded that insurance premium incentives

are less effective at supporting new adopters but are well-suited to supporting persistence and incremental expansion among existing adopters. The study attributed this effectiveness to program design features rather than payment size. The program has a low administrative burden and leverages existing insurance infrastructure, resulting in the delivery of sustained outcomes at lower marginal public costs than other programs. Importantly, findings from this study emphasized how insurance premium incentives were effective as a complementary, rather than substitutive, program for farmers by rewarding long-term practice use and filling incentive gaps for early adopters.^{lxv}

The evidence from these studies demonstrates that insurance premium incentives can deliver cost-effective, sustained BMP adoption when appropriately targeted and designed as complementary tools within a broader incentive landscape. However, these findings also underscore that insurance premium incentives are not a universal solution. Their effectiveness is shaped by program design, incentive size and the stage of BMP adoption they are intended to support. The following section outlines key limitations that constrain the applicability of insurance premium incentives in Canada.

3.2.3 Limitations

Insurance premium incentives are limited in their ability to support resilient transitions in Canada under the following circumstances:

- **Modest incentive size.** The size of the incentive, either in the form of a premium discount or top-up, tends to be small. While it has been shown to help early adopters expand practices to new acres, it is unlikely to be the deciding factor for new adopters.^{lxvi} In communications to farmers, it should be reinforced that insurance premium incentives recognize contributions toward building long-term resilience against extreme weather events and aggregate yield stability.
- **Limited relevance for reducing early-stage adoption risks.** Because of their modest incentive size, insurance premium incentives are not suitable for addressing the upfront risks associated with adoption, such as production uncertainty or access to capital. As mentioned, premium discounts and top-ups primarily have roles as ongoing, complementary incentives to help with incremental expansion or recurring management costs.^{lxvii} Pairing premium discounts and top-ups with other de-risking tools or cost-share programs could offset this limitation.
- **Data and design complexity.** The resource-intensive nature of creating an actuarially sound program based on measuring the impact a BMP has on farm-level risk may prevent initial uptake from insurance administrators. Disentangling the impact a BMP has on risk exposure requires substantial amounts of data and technical capacity. Supporting research initiatives that explore the link between BMPs and on-farm risk reduction could help overcome this risk and improve the design of other agri-environmental programming.

These limitations do not diminish the potential value of insurance premium incentives but rather underscore the need for a stronger evidence base to support their broader application. Improving data availability, refining insurance premium incentive approaches, and better aligning the value they bring

to different sector actors will be critical to unlocking their full potential. Future research priorities that respond directly to these gaps are outlined below.

3.2.4 Future research needs

Advancing insurance premium incentives in Canada will require research on several fronts, including: (1) expanding the evidence base that links BMP adoption to reductions in risk exposure for insurers; (2) considering how other environmental outcomes, such as biodiversity, can be integrated in risk modelling and insurance premium pricing; and (3) continued engagement with farmers, insurers and other sector actors to clarify the value of insurance premium incentive tools and identify opportunities for private-sector collaboration.

The Smart Prosperity Institute is engaged in research addressing several of these knowledge gaps and outstanding questions, including:

- Assessing the economic impacts of BMPs that support other environmental outcomes, such as enhanced water quality and biodiversity, to quantify ecosystem services and support future actuarial modelling on the ability of these practices to reduce insurance risks; and
- Establishing the causal links between a select suite of BMPs and insurance risk to enable a systemic shift in the way resilience-building BMPs are valued by better incorporating measurable outcomes into monetizable insurance products.

In addition to these topics, funding or resources for further research in the following areas will be needed to understand the feasibility of insurance premium incentives in Canada:

- Developing a framework of environmental outcome metrics that reduce insurance risks to ensure that insurance premium incentives go beyond soil organic carbon and address other prioritized environmental outcomes, like biodiversity,
- Expanding the analysis of the links between BMPs and insurance risk to other practices, regions and production systems to develop cost-effective and commercially viable insurance premium pricing tools,
- Exploring the utility of the top-up approach as an alternative method through engagement with farmers and insurers, and economic modelling to assess cost-effectiveness and actuarial soundness; and
- Consulting with regional insurance providers to analyze the outcomes of their premium incentive pilots and identify inroads for public-private collaborations to enhance capacity and support additional pilots of innovative risk management tools.

These research priorities highlight the foundational evidence and institutional capacity needed to advance insurance premium incentives in Canada. While continued research will be essential to resolve data gaps and refine program design, there is also an opportunity to translate emerging evidence into policy. The following section outlines policy pathways that build on the findings of transitional coverage and insurance premium incentives to date, identifying opportunities for policymakers, insurers and other sector actors to support these insurance innovations in a pragmatic and coordinated way.

4 Pathways to enabling insurance innovations in Canada

Considering the existing policy and program landscape, the innovative insurance tools in this report are new opportunities to support resilient transitions on Canadian farms. These tools fill critical gaps by offering complements and alternatives to traditional cost-share programs. They create clear entry points for insurance-sector participation in reducing on-farm risks. Their adoption would support a more comprehensive approach to risk management programming by reducing adoption risks and promoting proactive risk mitigation.

However, bringing these insurance innovations to life in Canada will require coordinated action across research efforts, data systems, partnerships, funding envelopes, programs and policies. This section identifies three priority pathways that governments and insurers can continue to explore to catalyze the development, implementation and piloting of innovative, resilience-focused insurance tools. These pathways can also help strengthen the sector's understanding of risk, how to mitigate it, and enabling the development of a wider range of resilience-focused programs and policies.

4.1 Build a Canadian evidence base linking BMP adoption and reduced risk exposure

Understanding how BMP adoption influences yield variability, productivity outcomes under weather stress or natural perils, and ultimately, indemnity levels would create a clear evidence base for building new insurance products and other risk-management programs. Canada-specific research is needed to refine our understanding of the risk mitigation impacts of BMPs, such as cover crops and reduced tillage, and environmental outcome metrics, such as higher-than-average soil organic carbon.^{lxviii} This research should be applied to a range of production systems and BMPs to clarify the strongest opportunities for reducing insurance risk via BMP adoption in Canada.

To advance this type of research and assess the links between BMP adoption and reduced insurance risk, policymakers and insurers can play a role in the following ways:

- **Leverage available insurance datasets to conduct research that links BMP adoption and insurance indemnity outcomes to validate the role of BMPs in building resilience.** This research should explore the impact of a variety of practices on insurance outcomes, including improved nutrient management, rotational grazing, and incorporating trees in agricultural lands, like shelterbelts or silvopasture. It should also analyze how various environmental outcomes influence insurance risk to quantify on-farm resilience, including the use of soil health metrics (e.g., microbial biomass and diversity, and aggregate stability) and biodiversity (e.g., species diversity, wildlife habitat capacity).
- **Mobilize existing research capacity through current or planned programs.** This should include on-farm research and trialling networks, and academic research capacity via the Natural Sciences and Engineering Research Council and Social Sciences and Humanities Research Council

collaborations, to understand the links between BMP use and indemnity risk. Leveraging external research capacity in the form of academic and industry networks can enhance buy-in, complement the research conducted by insurers, fill gaps in knowledge and inform practical applications through on-farm research.

- **Modernize data collection systems to improve data collection methods, data accessibility and data availability to enable new risk-based analyses.** One opportunity could be using the next Agricultural Policy Framework to require enhanced and standardized data collection on BMPs during crop insurance intake processes from provincial insurance providers. Resulting data could be used to populate a publicly available database that shares anonymized BMP adoption and indemnification rate data.

Additional BMPs for risk mitigation beyond soil health practices

While most of the existing research has focused on soil health practices and metrics, there are a variety of other BMPs that can help protect against rising indemnity costs while ensuring the stability and success of each production cycle:

Improved nutrient management practices, like split application of nitrogen and enhanced efficiency fertilizers, can reduce nutrient losses and improve the timing of nutrient availability to optimize plant growth.^{lxix}

Rotational grazing practices can improve pasture productivity, reduce reliance on external inputs and improve overall resilience during times of drought.^{lxx}

Shelterbelts can reduce wind erosion or damage, trap winter snow, reduce moisture loss and potentially contribute moisture to the next crop cycle.^{lxxi}

An emerging example of these recommendations in action is the Resilient Agriculture Finance and Insurance Research Collaborative in the United States. It is a joint initiative between the Environmental Defense Fund, the Foundation for Food and Agriculture Research and Cornell University. This initiative aims to accelerate innovation and research on financial and insurance products to enable farmers, ranchers and other food system actors to invest in resilience and sustainability. The “Aligning Resilient Practices with Risk and Insurance Outcomes” stream draws several parallels to our recommendations, in that it looks at: “how resilient practices affect yield stability, risk profiles, and crop insurance outcomes.”^{lxxii} This initiative illustrates how coordinated research and cross-sector partnerships can accelerate the translation of BMP adoption and insurance risk research into innovative insurance solutions.

4.2 Redesign insurance products to reward proactive risk mitigation

Once a robust evidence base exists to identify BMPs that can reduce exposure to indemnity risk, this data can be used to inform the modernization of existing insurance products.

Building on findings from the research activities suggested in [Section 4.1](#), policymakers and insurers could modernize insurance products to incentivize BMPs that are shown to reduce future exposure to

indemnity risk. This modernization would involve redesigning insurance products to include mechanisms that reward proactive risk mitigation (i.e., the adoption of BMPs that generate beneficial environmental outcomes that enhance resilience). By better aligning insurance products with practices that demonstrably reduce yield variability and weather-related losses, insurance programs can strengthen farm-level resilience and improve the long-term sustainability of insurance programming.

Redesigning and modernizing insurance products could include the incorporation of insurance premium incentives, such as discounts or top-ups. Integrating these tools into existing insurance products could support proactive risk mitigation by encouraging the incremental and sustained adoption of risk-reducing BMPs, while also rewarding early practice adopters through fiscally-sound programming.

Redesigning insurance products to incorporate new tools (i.e., insurance premium incentives) could be catalyzed through the following suggestions:

- **Use data that links BMP adoption and indemnity risk to identify priority profiles for proactive risk management tools, like insurance premium incentives.** Data gathered in the research activities suggested in [Section 4.1](#) could be used to actuarially quantify the resilience benefits of different farm management practices. Combining these findings with analysis on areas and production systems where production risks have risen recently can support the identification of priority practices, crops and regions where proactive risk management is most urgent.
- **Expand AgrilInsurance pilots under the Sustainable Canadian Agricultural Partnership mandate to explore how premium discounts can be applied to other practices, production systems and regions identified through activities in the previous bullet.** The expanded mandate should also consider how the different environmental outcomes that reduce insurance risk, as mentioned in [4.1](#), can be incorporated into outcomes-based pilots that determine incentive amounts based on demonstrated performance (e.g., Agriculture Financial Services Corporation’s soil organic carbon pilot). These pilots should also explore the use of other insurance premium incentives, such as a top-up (i.e., enhanced insurance coverage at no additional cost) to motivate the sustained adoption of BMPs.
- **Incorporate successful insurance premium incentive pilots into mainstream insurance products, making these offerings standard programming across Canada.** By quantifying the indemnity risk mitigated by the adoption of these practices, these types of incentives could be offered through existing multi-peril or other crop insurance products in a way that is cost-competitive to traditional environmental programming (i.e., cost-shares). By coordinating with existing environmental programs, these incentives could maintain and progressively expand BMP adoption.

An example of these recommendations in action is the USDA’s Cover Crop Premium Discount, as outlined in [Sections 2.2](#) and [3.2](#). States such as Iowa, Illinois and Indiana established premium discount programs for farmers using cover crops. This incentive model was expanded through the federal initiative in 2021 and 2022.^{lxxiii} Though federal funding for some states has ended, this program has continued to be funded by state-led efforts in new jurisdictions, such as Wisconsin.^{lxxiv} This model

has yet to be expanded to other practices or cropping systems, though the Resilient Agriculture Finance and Insurance Collaborative mentioned in [Section 4.1](#) could result in new programs and models being developed.

4.3 Pilot new insurance innovations that share the risk of practice adoption

To address barriers to sustained BMP adoption—like a heightened sensitivity, or inability for many farmers to absorb a growing number of short-term risks—governments and insurers could prioritize piloting transitional coverage tools, like BMP insurance and production warranties. These new pilots would test novel insurance products to understand their value to farmers, their efficacy at de-risking BMP adoption and their cost-effectiveness compared to other programs that support BMP adoption, like grants and cost-share. While cost-effectiveness varies across existing examples, some program designs achieve higher profitability for farmers and insurance agencies alike.^{lxv}

These new pilots would be informed by research activities suggested in [Section 4.1](#), identifying practices that should be prioritized for transitional coverage based on their ability to reduce insurance risk and build long-term resilience. Piloting transitional coverage tools, like BMP insurance and production warranties, across different production systems, regions and practices will clarify their value or feasibility and provide information for future Agricultural Policy Framework cycles.

To enable new pilots for transitional coverage tools, the following measures could be explored:

- **Establish a Risk Management Innovation Fund** that provides grants, social investments, first loss capital or establishes a revolving fund (i.e., via premium payments) for interested insurance providers to conduct pilots of insurance innovations, like transitional coverage tools. This fund should coordinate across public and private policies and coverage responsibilities to minimize overlap and clearly delineate responsibilities. This fund should also incorporate standardized reporting metrics for each pilot and focus on providing policy-relevant details that can inform future Agricultural Policy Framework negotiation cycles.
- **Include a mandate to pilot additional insurance innovations in the next Agricultural Policy Framework**, including the design and implementation of transitional coverage tools. The design of these products could be informed by further research assessing the actuarial risk of BMP adoption. This approach could also have added benefits, like supporting progress on federal climate targets (i.e., these tools are well suited to enhanced nitrogen management practices and could support progress on Canada's target to reduce emissions from nitrogen fertilizers by 30% by 2030).
- **Integrate insurance innovations into existing risk management and BMP-support programming** to ensure the sector holistically supports the adoption of resilience-building practices. The goal of this alignment should be to coordinate BMP adoption programming (e.g., cost-shares and sustainable capital solutions) and risk management tools as complementary approaches that can address different barriers and risk attitudes throughout the full BMP

adoption journey. Transitional coverage tools could be incorporated into the business risk management portfolio as a new program or function as an add-on to the landscape of existing BMP adoption programs. This approach may have added benefits, like streamlining program administration or reducing external administrative burdens.

International evidence shows the effectiveness of following these recommendations. For example, the BMP Challenge in the United States was supported through Conservation Innovation Grants and co-funded by public and private actors to test transitional, profit-based insurance models at scale and directly with farmers.^{lxxvi} This approach demonstrates how coordinated investment between public and private actors can reduce the financial barriers to insurance product innovation.

Similarly, coordinated support programs in Iowa, like the Environmental Quality Incentives Program and the Post Application Coverage Endorsement program, combine upfront incentives with practice-based insurance to de-risk initial transition periods and incentivize sustained BMP adoption.^{lxxvii}

Together, the pathways outlined in this section illustrate how insurance innovations, like transitional coverage and insurance premium incentives, can transition agricultural risk management programs from a largely reactive safety net into a proactive risk mitigation system that builds long-term resilience on Canadian farms. Government and insurers can unlock new opportunities to align resilience, competitiveness and fiscal sustainability by understanding the causal link between BMP adoption and reduced indemnity risk. They could also redesign insurance products to reward proactive risk mitigation, and pilot new insurance innovations that share the risks of BMP adoption. These pathways highlight a coordinated approach for catalyzing the exploration and implementation of insurance innovations by building on collaboration and incremental learning to deliver sound policy and sector-wide resilience.

Conclusion

New solutions are needed to support Canadian farmers in managing their increasing exposure to climate and market risks. Recent years have shown how extreme weather events, such as intense drought in the Prairies, come at a cost to farmers, insurers and taxpayers through record-level indemnity payouts, yield losses, and increases in insurance premiums.

BMPs are one proven solution that can help lower the risk of these insurance payouts, improve farm profitability and help Canada meet environmental performance targets. Yet the adoption of practices that can help support long-term resilience comes with significant short-term risks and financial uncertainty for farmers. This challenge is exacerbated by the current design of agricultural insurance programs that do not adequately recognize and reward practices that help build resilience and stabilize the profitability of Canadian farms.

In response, this research has explored how two types of insurance innovations, transitional coverage and insurance premium incentives, could promote proactive efforts to reduce long-term climate risk exposure and ease the uncertainty and financial burden of adopting resilience-building practices. These tools have been applied in other countries to support resilient transitions, such as the United States and Australia, and could be considered as scalable solutions for Canada.

Transitional coverage, like BMP insurance and production warranties, play a role in resilient transitions by de-risking the adoption of new BMPs, providing a financial safety net to farmers and mitigating uncertainty or changes in profit or yield. Insurance premium incentives, like discounts and top-ups (i.e., enhanced coverage at no additional cost), create long-term ways to reward efforts that proactively manage production risks for farmers and lower the risk of indemnity due to climate variability for insurers. Together, with cost-shares or sustainable capital solutions, these tools represent a comprehensive approach to facilitating and sustaining resilient transitions, ensuring the sector can weather future disruptions and enhancing food security.

To bring these tools to life on Canadian farms, our research identified three paths that governments and insurers can explore to kick-start their development:

- **Build a Canadian evidence base linking BMP adoption and reduced risk exposure.**
Governments and insurers could prioritize developing robust, causal evidence on how BMPs reduce production risk and indemnity costs. This includes:
 - leveraging existing crop insurance datasets to quantify the impact of risk-reducing BMPs on insurance payouts,
 - mobilizing applied academic and on-farm research capacity to fill critical data gaps and validate findings under real-world conditions; and
 - modernizing crop insurance data collection systems to identify, track and report emerging BMP-risk links over time.

- **Redesign insurance products to reward proactive risk mitigation.**

This includes:

- using data that links BMP adoption and indemnity risk to identify priority risk profiles for proactive risk management tools,
- expanding premium incentive pilots under the Sustainable Canadian Agricultural Partnership mandate to other practices, production systems, regions and insurance premium incentive tools; and
- incorporating successful insurance premium incentive pilots into mainstream insurance products to incentivize and reward the adoption of BMPs that reduce indemnity risk.

- **Pilot new insurance innovations that share the risk of practice adoption.**

This includes:

- establishing a dedicated Risk Management Innovation Fund that enables transitional insurance pilots and coordinates coverage across public and private actors,
- including a mandate in the next Agricultural Policy Framework to pilot new insurance innovations including the design and implementation of transitional coverage tools, and
- integrating insurance innovations into existing risk management and BMP-support programs. This could enhance the support landscape and synergize provincial cost-share initiatives and sustainable capital solutions to holistically address the barriers to BMP adoption.

Canada's agriculture and agri-food sector stands at a critical juncture, requiring meaningful reform on how climate risks are managed. Advancing research and development on new insurance innovations could accelerate the adoption of resilient farming practices, supporting farmer financial health and food security. By aligning risk management programs with long-term resilience, Canada has an opportunity to make the sector not only more sustainable, but also more competitive and secure for generations to come.

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