Sub theme: Managing farm business

CHECK YOUR BLIND SPOTS: 360° OF FARM RISK MANAGEMENT

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CHECK YOUR BLIND SPOTS: 360° OF FARM RISK MANAGEMENT

Abstract

Agriculture is an industry riddled with risk and uncertainty. In fact, agriculture rates amongst the highest risk industries in the world[1]. Climate change, pests and disease, demand for growth, global markets and trade, regulations and consumer preferences are all contributing to the increasing level of risk faced by farmers. And yet, agriculture is the least prepared industry for managing risk[2].

For farm managers, risk and uncertainty can lead to poor decision-making, to the detriment of the farm and agricultural sector. Risk management involves applying a process by which farmers are equipped to reduce uncertainty and take calculated risks that support effective decision-making.

The Organisation for Economic Co-operation and Development published two studies[3] recommending a holistic approach to risk management. This type of approach has not been applied in Canada.

This paper explores the development of AgriShield®, an online risk management platform that gives farmers a 360° view of the risks they face to improve the adoption of a comprehensive approach to managing risk by Canada's farmers.

Keywords: risk, agriculture, farm, management, Canada

[1] KPMG International Cooperative (2012). Expect the Unexpected: Building business value in a changing world.
[2] Ibid.
[3] OECD (2009), Managing Risk in Agriculture: A Holistic Approach. Paris: OECD.

Introduction

Agriculture is an industry riddled with risk and uncertainty. Climate change and weather, increasing urbanization, pests and disease, the demand for growth, global markets and trade, regulations and consumer preferences are all contributing to the increasing level of uncertainty and risk faced by farmers. A 2012 study by KPMG International[4] examined the readiness of businesses to deal with risk, worldwide. The study concluded that agriculture and agri-value sectors are at the highest risk, and yet, are the least prepared to manage risk. In Canada, less than 30% of farmers have a risk management plan[5].

For farm managers, risk and uncertainty can lead to poor decision-making, to the detriment of the farm and agricultural sector. Risk management, which is to say planning strategically and applying a process by which uncertainty can be reduced, has become essential to the survival and prosperity of all farms. As such, farmers must be equipped with the knowledge, resources and tools required to take calculated risks that support logical and effective decision-making in a timely manner.

The Organisation for Economic Co-operation and Development (OECD) published Management in Agriculture: a Holistic Approach in 2009, followed by Managing Risk in Agriculture – Policy Assessment and Design in 2011 with the following recommendation, presented hereto in abbreviated form:

Government policies should take a holistic approach to risk management and avoid focusing on a single source of risk…in many cases, public farm support programs have crowded out other ways to manage risk.

The application of risk management within the full context of Canadian agriculture and on farms is not well understood[6] and mistakenly synonymous with public farm support and insurance programs[7].

[4] KPMG International Cooperative (2012). Expect the Unexpected: Building business value in a changing world.
[5] Ipsos Agriculture and Animal Health (2015). Dollars and Sense: Measuring the Tangible Impacts of Beneficial Business Practices on Canadian Farms. Commissioned by Agri-Food Management Institute (AMI), Farm Management Canada (FMC).
[6] Agricultural Management Institute (2011). Baseline Study of Farm Business Management Planning.
[7] Antón, J., S. Kimura and R. Martini (2011). Risk Management in Agriculture in Canada, OECD Food, Agriculture and Fisheries Papers, No. 40, OECD Publishing, Paris.
<http://dx.doi.org/10.1787/5kgj0d6189wg-en>

A comprehensive understanding of risk and a 360º approach to risk management positions farmers to understand that which is in, and outside of their control, to both mitigate possible negative impacts of risk and benefit from potential rewards in taking calculated risks. With a better understanding of risk, farm managers are more likely to take the right risks, mitigate the adverse, and continue to profit. A successful farm business means everyone's more successful, from the seed supplier to the grain buyer and end consumer.

Farm Management Canada (FMC), as part of its effort to increase awareness and adoption of beneficial management practices on Canada's farms, embarked on a journey to discover the risk management needs of Canada's farmers and what information, resources and tools were needed to lead the Canadian agricultural sector towards a comprehensive approach to risk management.

This paper explores the development of AgriShield®, an online risk management platform developed by Farm Management Canada that gives farmers a 360° view of the risks they face to improve the adoption of a comprehensive approach to risk management by Canada's farmers.

Background and Methodology

As a first step to address the lack of resources available to support a comprehensive approach to farm risk, in 2013, FMC published the *Comprehensive Guide to Managing Risk in Agriculture*. The Guide was based on an extensive literary review and a series of expert interviews. It categorized and addressed over 30 types of risk from weather and climate to personal health and well-being, global markets, human resources, consumer pressures, changes to government policy, and many others. The Guide introduced farmers to assessing and prioritizing risk, and identified a wide variety of options available to manage risk, ranging from strategies to reduce risk (e.g. having standard operating procedures to reduce food safety concerns), to approaches to mitigating risk (e.g. through production diversification to balance market and weather uncertainties), and strategies for coping with risk (e.g. keeping a 'war chest' for unexpected cash needs). However, the Guide was more or less a collection of information rather than a user-friendly and practical risk management tool designed for farmers.

The next logical step was to create a farmer-friendly tool that could be used to identify, assess and manage risk. The AgriShield® project was launched in February 2017. The key goals of the project were to:

- Cultivate a more comprehensive approach to assessing and managing risk within the agricultural sector for all industry stakeholders including farmers, advisors, academia, the private sector, and government
- Increase the awareness and adoption of risk management practices and planning as part of the farm management process
- Provide a farmer-focused, user-friendly tool to assess and analyze individual farm risk or group/sector risk
- Provide risk management solutions including best management practices for farmers across Canada
- Provide sector and region-specific data related to key risks and gaps in resources to meet the needs

And ultimately, by taking a comprehensive approach to managing risk, increasing Canada's competitiveness, sustainable growth and prosperity.

In order to meet these objectives, the project methodology involved:

1. Establishing an Advisory Committee to inform project design, methodology, and provide subject matter expertise
2. Hosting a series of focus groups to identify the risk management needs of Canada's farmers and determine the need for, scope, functionality and features of a new tool
3. Building a risk assessment and planning tool prototype to meet user needs
4. Alpha and Beta testing the tool to ensure functionality and a user-friendly, intuitive experience
5. Finalizing the tool for pilot launch
6. Creating a strategic plan including business model and marketing and communications plan for the tool to ensure industry uptake and a sustainable financial model

Results

The Advisory Committee was comprised of representatives from farm groups (both national and regional), the banking and lending sector, government programs and policy, accounting firms, legal firms, insurance providers, extension specialists, farm consultants and coaches.

In February and March 2017, 8 focus groups were conducted across Canada in Alberta, Manitoba, Nova Scotia, Ontario and Quebec with a total of 120 participants.

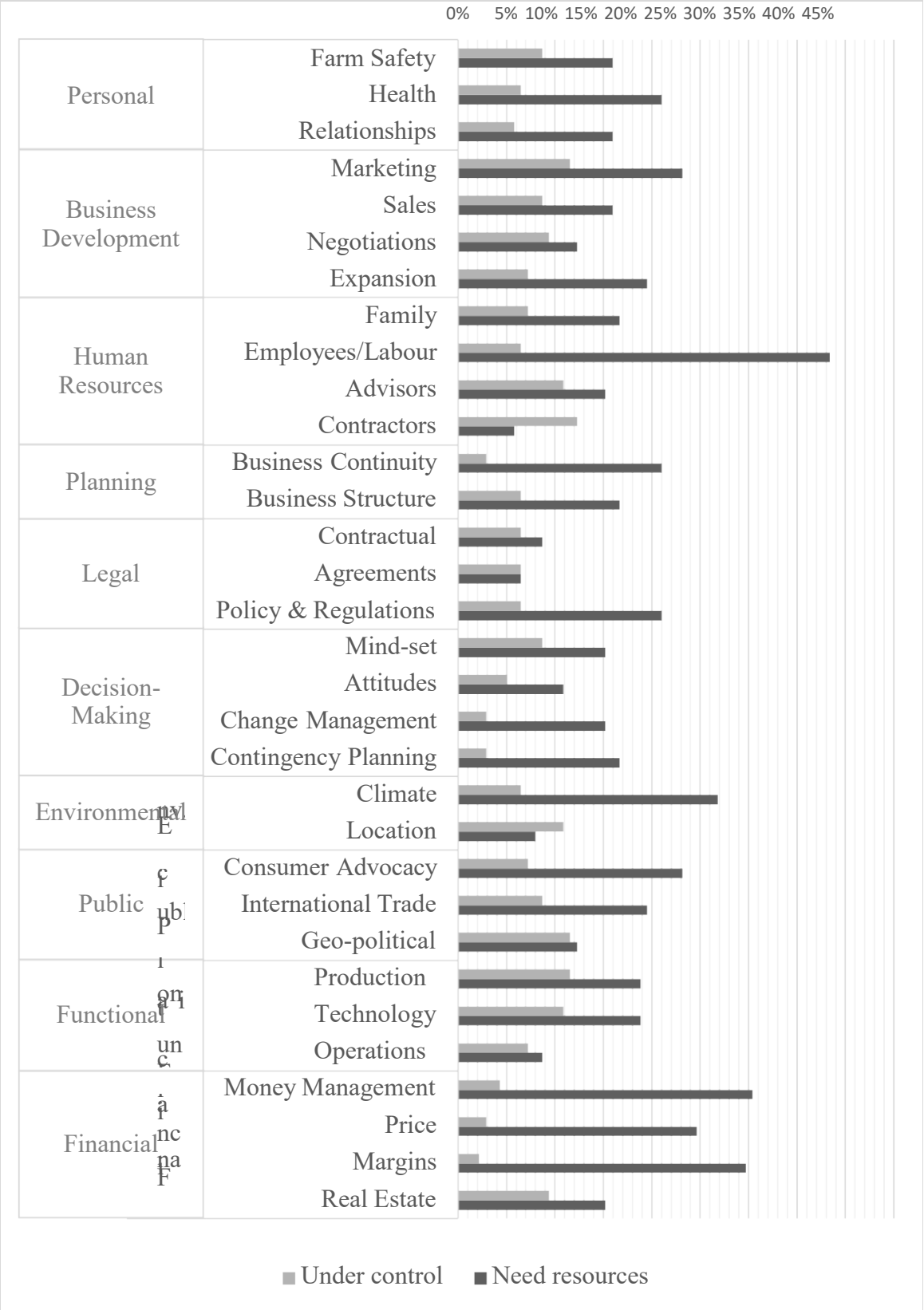
While some focus groups were exclusively composed of farmers, young farmers or advisors, others were blended groups, welcoming participants from a variety of backgrounds and demographics. This was done to ensure that everyone had a voice while also allowing for collective dialogue. Overall, the demographics of the focus group participants were balanced to reflect diversity in gender, age (19 years old to 65+), occupation (producers, farm advisors (lawyers, accountants, financial specialists, agronomists), financial institutions, insurance providers, students, academia and government representatives), level of education (high school to post graduate degrees), and types of agricultural production (including: cash crops, animal production, dairy, fruits and vegetables).

The main topics addressed during the focus groups were:

- Risks faced by Canada's farmers
- Types of risks considered to be 'under control' and those that require more resources
- Tools that are currently used to manage risk
- Potential purposes and potential users for a new tool
- Preferred functionalities and applications for a new tool
- Success factors and potential barriers regarding the adoption of the new tool

Focus group participants were asked to identify the types of risks faced by farmers in order to ensure the tool covered all risks. This was an open-ended question. They were then asked what risks they considered to be under control and the risks that require more resources from a list of risks derived from the *Comprehensive Guide to Managing Risk in Agriculture*.

Figure 1: Risks considered under control and risks requiring more resources by risk type



All risk types were considered under control by a small percentage (2% to 12%) of the group and considered to require more resources by a higher percentage of the group (6%

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to 38%). None of the risks identified by the groups were considered to be under control by the majority of focus group participants. The highest ranking risks requiring more resources were employees/labour (38%), money management (30%), margins (30%) and climate (27%).

Participants were asked to identify risk management tools they currently use or of which they were aware. 222 different resources and tools were identified, covering all formats and types of risks. Very few tools were identified that covered more than one type of risk. And, no tool was identified that covered all types of risk. The list was verified and expanded during a subsequent review conducted by the project team and incorporated into the tool as part of the resource database.

Participants were asked to comment on their desired uses for a new risk management tool. The top two responses were to "Make decisions and outline next actions to be taken" (75%) and "Get access to resources and services regarding risk management" (53%).

Figure 2: Desired uses of a new risk management tool

When asked to comment on tool format, participants expressed a need for an electronic resource, for ease of use, and online access to avoid complications over software updates and versioning, ensure safe data storage and protection, and allow remote access from any location.

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In order to ensure the highest level of adoption, the tool must be easy for farmers to use. Some of the barriers to using the tool highlighted by focus group participants include:

- Scope of content / Time required to use the tool
- Technical skill of producers
- Limited internet access

In response to perceived barriers to adoption, it was determined that the tool would be grounded in a self-assessment and planning tool rather than a predictability tool as farmers would not require a high level of technical knowledge or need to rely on any outside information to use the tool. This also helps alleviate concerns about security since users would not be required to enter detailed financial information about their farm business. To further alleviate concerns about the scope of content and time required to use the tool, multiple entry points were created so that a user could simply access resources related to a specific risk, could evaluate what risk(s) they should asses first, and could assess one risk at a time – receiving the results of their assessment and creating the accompanying action plan for each risk separately, if desired. Concern was further alleviated by recognizing the tool could be used by advisors to help their farm clients.

The issue of limited internet access was raised on multiple occasions, therefore it was important to ensure that the tool would be lightweight enough to function with low bandwidth and that it could be accessed through mobile devices, which could utilize data plans instead of relying on an internet connection.

The information collected during the focus groups was compiled and analyzed by the project team in order to validate the need for a new tool, ensure all risks were included in the tool and confirm scope, format and functionality required to meet the identified needs.

A prototype of the new tool, named AgriShield®, was created in the fall of 2017 which was then Alpha and Beta-tested during the winter to ensure functionality and a user-friendly, intuitive experience. Alpha and Beta-testers were from various agricultural backgrounds, across industry demographics including production sector, geography, gender and age. The results of the testing were compiled and reviewed by the project team in order to make the necessary adjustments to the tool for launch. Over 80% of Beta testers noted they were “Likely” or “Very Likely” to recommend AgriShield® to a friend, colleague or neighbour.

A strategic plan including a business model and marketing and communications plan was created to help ensure industry uptake and a sustainable financial model for ongoing delivery and development. The platform must be economically sustainable and therefore not dependent on government funding.

Following consultation with industry, it has been determined that farmers will pay a user fee to access and use the tool while consulting firms, academia and other users will be able to purchase licenses to use the tool with clients, researchers, students, etc.

AgriShield® is currently in a pilot-testing phase. Since April 2018, over 200 participants from various backgrounds in the agricultural sector have been invited to "test drive" the platform and provide feedback to FMC for recommended improvements and future developments.

The tool includes administrative functionality to permit aggregate data analysis including user demographics (region and occupation), assessment completion rates and responses.

Once the live version of the platform is launched in April 2019, data will be collected from the users and aggregated in order to provide benchmarking information and group or sector specific analysis in order to help stakeholder groups and others such as government and insurance companies to better understand the risk management needs of producers and to fill any potential gaps in the products and services available to the agricultural sector.

How AgriShield® Works:

Types of Risk

AgriShield® takes into account 6 families of risk that are subdivided into 19 risk categories.

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Table 1: Risk Families and Categories

Risk Family	Risk Category
People	- Occupational Health and Safety - Personal Well-being - Hired Labour - Family Relations - Contractors and Advisors
Finance	- Money Management - Investments
Markets	- Sourcing, Selling and Trade
Business Management	- Business Strategy and Development - Technology and Innovation - Transition Planning - Operations
Business Environment	- Public Trust and Consumer Advocacy - Politics, Policies and Regulations
Production	- Environment and Climate - Animal Health and Welfare - Nutrient Management - Pest Management - Soil, Water and Biodiversity

Each risk category is divided into a number of risk situations defined as situation that may result in exposure to risk.

Table 2: An example of risk situations relating to Occupational Health and Safety

Risk Category	Risk Situations
Occupational Health and Safety	- Dangerous machinery and equipment - Farm equipment on the road - Confined and hazardous spaces - Hazardous materials - Exposure to heat - Slips and falls - Direct contact with farm animals - Fatigue and stress - Improper lifting or posture - Introduction of new workers, tasks, methods or technologies - Children on the farm - Visitors on the farm - Non-compliance with Occupational Health and Safety Regulations - Inadequate safety planning

For each risk situation, there are a series of best practices identified. Using occupational health and safety as the risk category and fatigue and stress as the risk situation, here are the best practices listed to determine preparedness to manage that risk and help improve managing the risk.

Table 3: An example of Risk Family, Category, Situation and Best Practices

Risk Family	Risk Category	Risk Situation	Best Practices
People	Occupational Health and Safety	Fatigue and Stress	✓ Take regular breaks during work ✓ Do not work along with feeling tired or stressed ✓ Take time off and celebrate holidays ✓ Eat a healthy diet and exercise regularly ✓ Talk with those around you about stressful situations ✓ Seek professional help and advice when stress becomes too difficult to manage

The User Experience

Figure 3: AgriShield® homepage

Users that click 'I Want Information and Resources' are asked to select a Risk Family and are led to an online, interactive Factsheet for that Risk Family. The Factsheets include:

- Industry statistics such as: A 30-year-old operator has a 54% chance of becoming disabled for 90 days before age 65
- Additional resources categorized by: organizations, multimedia, articles and tools
- Tips and advice such as: All farm operators should consider buying disability insurance

- A summary of risk situations and best practices
- Risks related to the selected category such as Occupational Health and Safety relating to Personal Well-Being and Hired Labour

Users that click 'I Want to Assess Risk on My Farm' are asked to select a Risk Category and are led to an assessment for that Category (Ex. Occupational Health and Safety). If users are unsure where to start, a Risk Roadmap is available, offering a quick, at a glance way to prioritize risks to your farm based only on the likelihood or frequency of the risk and impact.

Once the Risk Category is selected, the user is asked a series of questions for each potential risk situation related to that risk, including the frequency or likelihood of the risk situation occurring, the impact of the risk occurring, the management practices currently in place to mitigate that risk, and based on the best management practices in place, the level of preparedness they feel to face that risk.

The platform then analyzes the risks that are most important for the farm based on frequency or likelihood, impact and level of preparedness. Users do not have to complete all Risk Categories for the tool to analyze results. Those Categories that are not assessed are highlighted in the Risk Profile with a link to assess them. It should be noted that a risk can be classified as high based on frequency or likelihood and impact, yet be classified as a low priority if the level of preparedness is sufficient to address the risk (see Figure 4).

The Risk Profile offers a quick summary of the risks that have been assessed by priority level, which can range from high to low. The Risk Profile can be printed to share the information with the farm team or other stakeholders. It also provides a direct link to the next step of the risk management process which is the Action Plan.

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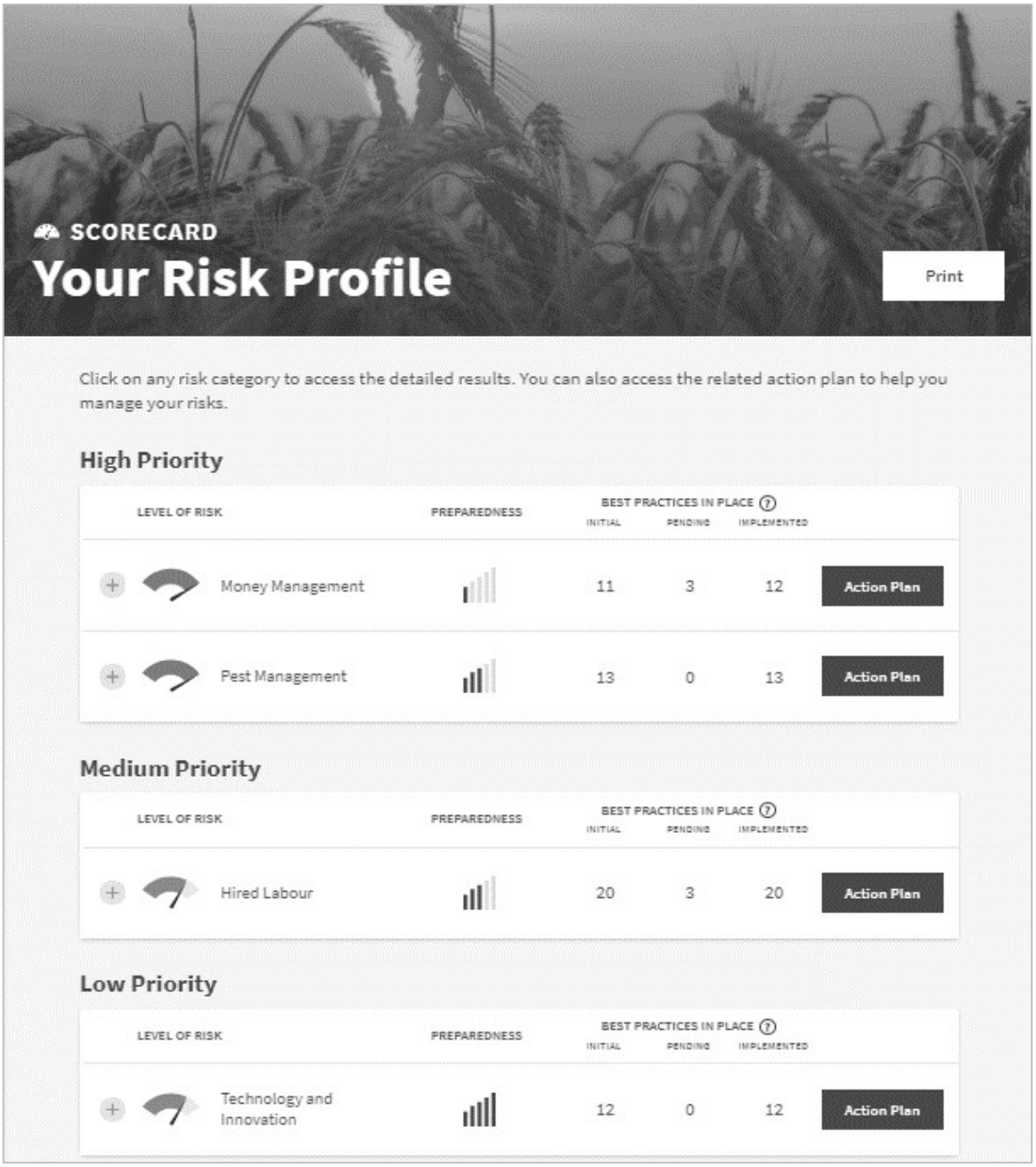
Figure 4: Risk Profile



The Action Plan offers an easy way to set specific actions to be undertaken in order to better mitigate the risks identified. The user can select from amongst a list of recommended best practices for each type of risk or simply create an action better suited to their specific needs. They may also assign the responsibility to a member of the farm team and set a date for completion. Finally, once the action has been accomplished, it can be checked off from the list to indicate its completion and the platform will add the completed action to the list of best practices in place for that specific risk. Users can have an Action plan for

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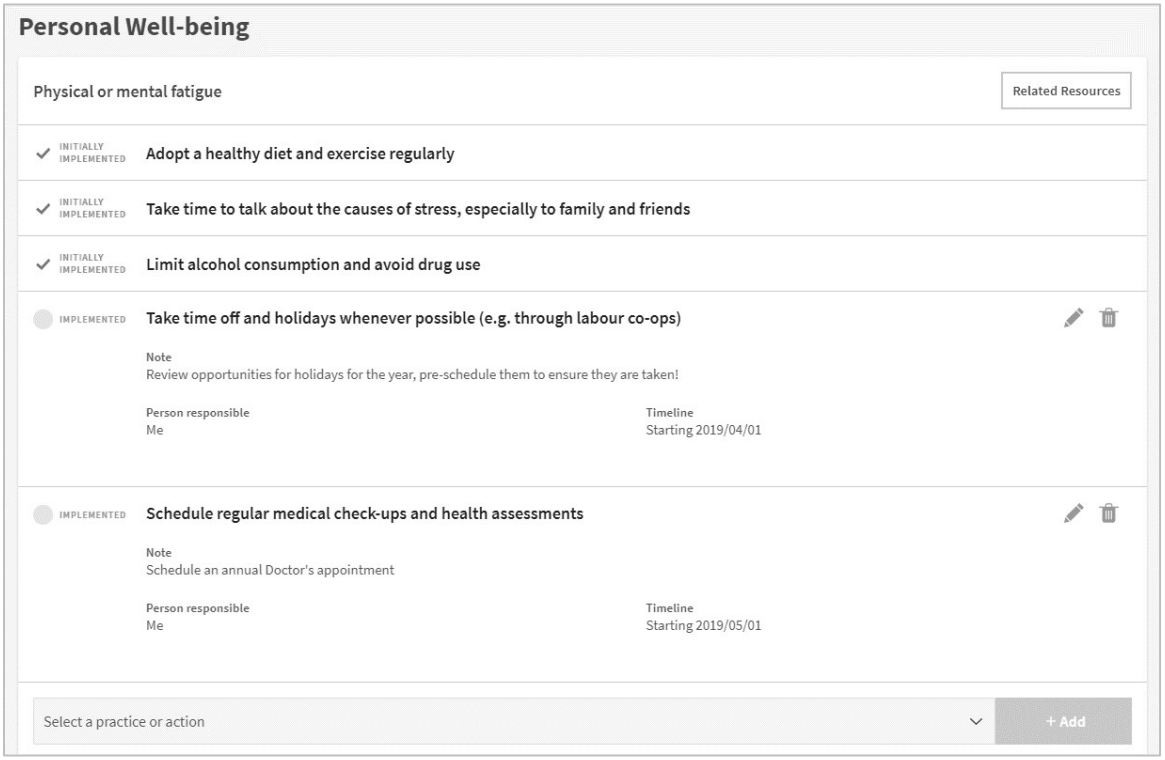
each of the six Risk Families. Users also have the option to print or export a PDF version of the action plan.

Figure 5: Your Action Plan



AgriShield® also includes an "About Risk Management" section. For additional general information about risk including: What is Risk, Self-Assessment for Risk Tolerance, Approaches to Risk Management and information on different types of insurance available.

Discussion:

The feedback collected during the Focus Groups, Alpha and Beta-testing resulted in a number of reconsiderations and changes to initial assumptions and plans over the course of the project:

A Platform, not a Tool - During the Focus Group phase of the project, it became apparent that the word "tool" is synonymous with public and private industry insurance-based programs. The project team had to change the language around "tool" to "platform" in order to ensure participants were partaking with the right frame of mind.

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Re-Classifying Risk - Following feedback from the Focus Groups, the risk categories and risk types used in the *Comprehensive Guide to Managing Risk in Agriculture* were re-named and re-classified to align with industry vernacular. Risks were modified from 10 Risk Categories and 30 Risk Types to 6 Risk Families, 19 Risk Categories and over 200 Risk Situations.

Where to Start - Alpha and Beta-test groups felt some users may be unsure of where to start when it comes to conducting a risk assessment. A more basic assessment, the Risk Roadmap was added to the platform to help users identify which Risk Family they should put their attention towards first.

Unforeseen Alignment - While AgriShield® was created to provide a 360° risk assessment and planning tool for farmers to improve their risk management practices, through discussions with government and industry groups, it has come to light that this assessment tool could align with national and even international standards including the Sustainable Agricultural Initiative. The project team is in talks with these groups regarding opportunities for AgriShield to complement and integrate existing platforms and programs.

Conclusion

Historically, farm support programs are designed to cope with adverse conditions such as weather and markets that negatively impact production, price and the bottom line.

However, what got us here is not enough to meet the demands and opportunities of an increasingly complex agricultural sector, riddled with uncertainty. A comprehensive understanding of and approach to risk management positions farmers to understand that which is in, and outside of their control, to both mitigate possible negative impacts of risk and benefit from potential rewards in taking calculated risks. With a better understanding of risk, farm managers are more likely to take the right risks, mitigate the adverse, and continue to profit. A comprehensive approach looks beyond price and production risk to include risks such as personal health and well-being, animal welfare, the environment and food safety.

Through this project, Farm Management Canada has been able to confirm that Canada's farmers do not feel their risks are under control, they want additional resources to help manage risk, and there are currently no tools available that provide a comprehensive approach to managing risk.

Through the creation and use of the AgriShield® platform, we hope to change the conversation around managing risk in agriculture. We hope to see greater alignment between government programming and private sector services, and the practices adopted by individual farmers, incentivizing and rewarding farmers for taking proactive steps to minimize vulnerabilities and seize new opportunities.

Experience has shown that success in changing management behaviour at the farm level relates to the availability, utility and relevance of the information. AgriShield® is built specifically to integrate risk management into the everyday operation of the farm, thereby increasing the likelihood of adoption.

At the international level, AgriShield® can easily be customized to appeal to any production sector or user demographic and adapted to address the unique risks of any region.

By taking a comprehensive approach to managing risk in agriculture, farmers will be positioned to innovate and grow, building the underlying capacity to confront change with confidence and continue as major contributors to economic, environmental and social development.

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