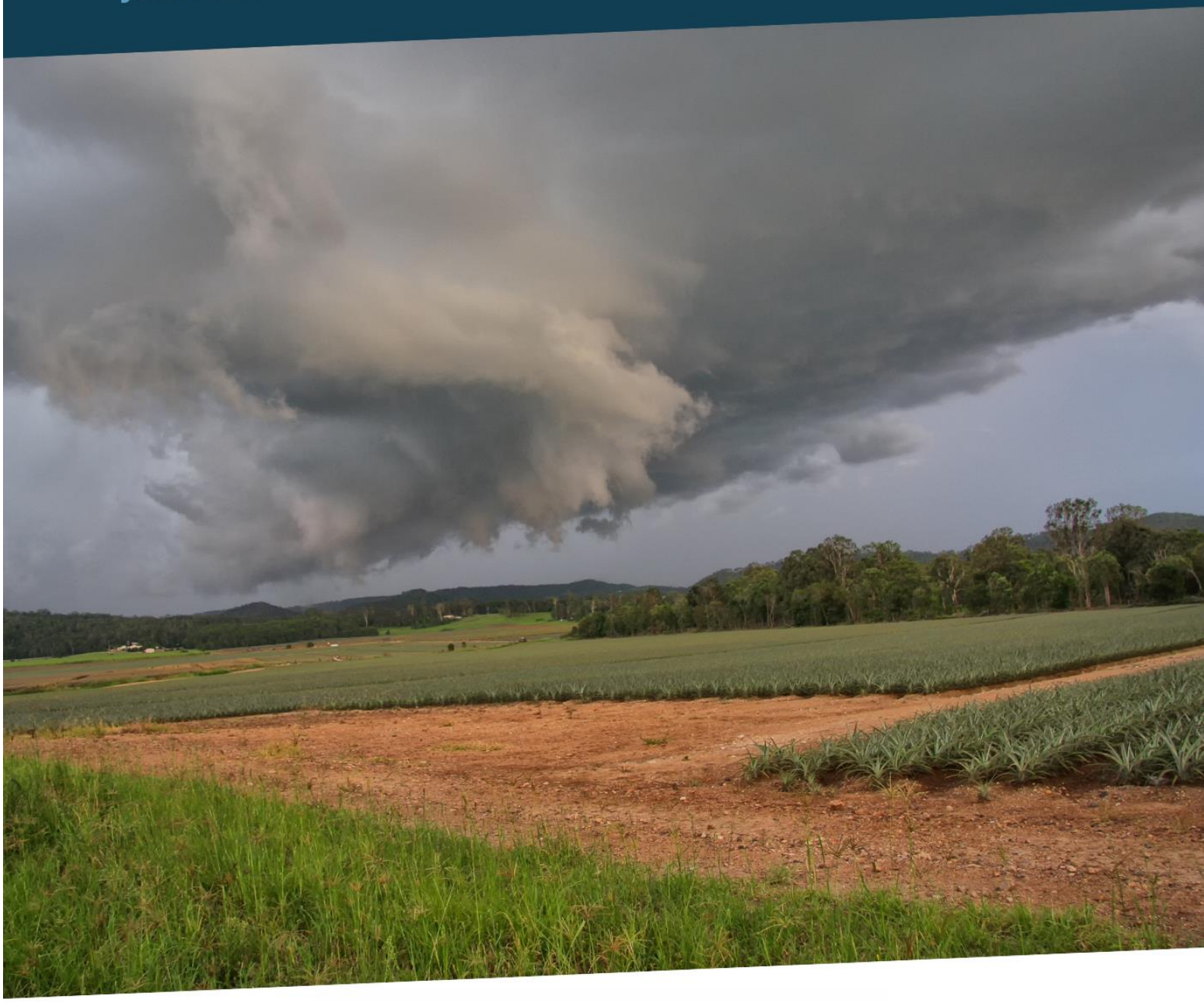
Insurance tools for managing crop and financial risk

Future Drought Fund Innovation Grant Final Report

June 2024



Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

QFF QUEENSLAND FARMERS' FEDERATION

University of Southern Queensland

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This project is supported by Queensland Farmers' Federation (QFF), University of Southern Queensland (UniSQ), Willis Towers Watson (WTW) and CelsiusPro through funding from the Australian Government's Future Drought Fund.

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About the Queensland Farmers' Federation

The Queensland Farmers' Federation (QFF) is the united voice of agriculture in Queensland

The Queensland Farmers' Federation (QFF) is a member-based organisation representing the interests of peak agriculture industry organisations, both state and national. Through our peak body members QFF represents more than 13,000 primary producers across the cotton, sugarcane, horticulture, dairy, nursery and garden, poultry, eggs, pork, and intensive animal industries.

We unite the sector to engage in a broad range of economic, social, environmental, and regional issues through advocacy, policy development, and project activity. We work with the government of the day on behalf of industry, farmers, and the community to provide powerful representation and contribution to the policy direction, sustainability, and future growth of Queensland's agriculture sector.

Our Council of member representatives and policy committees set the strategic priorities for policy development and advocacy, while our Board ensures our corporate governance.

QFF draws on the expertise and industry knowledge of our members and through our commitment to collaboration and considered policy development, we lead Queensland's agriculture sector towards a strong future, ensuring our members are ahead of the game and have a voice at the table on the issues that matter to their members.

Glossary of key terms

For a full glossary of terms used in this Report, refer to the project document, *Parametric Insurance: what is it and why should I use it?*

Executive Summary

This report outlines the collaborative process adopted by QFF and project partners, UniSQ Centre for Applied Climate Sciences, WTW and Celsius Pro to develop parametric index insurance and weather derivative products to enable Australian farmers to manage risk to crops and smooth farm income volatility.

The project received funding through the Australian Government's Future Drought Fund. The project is titled, *Integrating index-based insurance and optimal crop management strategies to reduce financial risk and improve income stability*. The aim is to develop new insurance products that integrate risk solutions with optimal crop management strategies to stabilise income volatility and maximise long term farm profitability.

This project focused on the benefits and barriers of parametric insurance options that help offset the financial effects of low rainfall, heatwave, hail storms and natural hazard events that affect crop management. Research investigated methods of crop planting in the optimal window to enhance yield potential and therefore, protect income and aid profitability. The project considered viable methods of pooling risk across an industry, region or state as cost-effective mechanism for wider adoption of parametric products and protection of farm income.

Key themes and lessons emerging from the research include:

- Managing risk is crucial for successful farming. The application of index-based insurance to manage risk is a sensible solution within a farmer's toolkit of financial management options.
- Co-design enables a range of more affordable, index-based insurance solutions for various industries, including wheat, broadacre, cotton, and horticulture. The project has demonstrated there are several options available for designing index insurance policies.
- Customisation is one of the advantages of index-based insurance. As these products are not 'off -the-shelf', it is important that farmers participate in the customisation process with the insurance adviser or industry group, so as to not be caught out by poorly designed products. It is vital the products are accurately designed to ensure insurance coverage meets the risk appetite and financial needs of the farming business purchasing the product.
- The project has also highlighted a few success stories demonstrating the effectiveness of index-based insurance in safeguarding income, enabling quick recovery after disasters and as a suitable option for managing low rainfall seasons.
- A majority of growers have indicated they generally find the premium range "reasonable", however, when they consider the affordability in the context of their business they often deem the product premiums too expensive and want to cap the Rate Online (ROL) at 5% or lower.
- Farmers in regions where hail plate trials were implemented welcomed the chance to access index-based hail insurance coverage as traditional indemnity insurance products are often becoming prohibitively expensive or simply unavailable. There is the potential for farm businesses to embrace parametric hail insurance if it is provided at a "reasonable" premium cost.
- Due to the unique customisation of index-based insurance products considerable effort, time and resources are required to continue information, education and build the knowledge capacity of producers and the insurance industry. There is a specific role for each player in the purchase decision process, including the farmer, agriculture industry organisation, government entities and the insurance market.

Over the medium to long term, we expect the research and work undertaken as part of the project to increase the availability and accessibility of parametric insurance products for farm businesses. The project has developed parametric insurance for a more diverse range of commodities where products had previously not been available eg. the horticulture industry (with specific focus on the pineapple industry). These commodities now have access to parametric products that cover low-rainfall but also multi-risk which may also include heat-stress, frost, hail and/or cyclone.

These multi-risk products are innovative and were developed specifically as a consequence of farmer engagement with this project. This approach to developing a multi-risk parametric acknowledges the importance of co-design and that low rainfall is not the only climate variable that impacts a farm businesses ability to be drought resilient.

In summary, this project recommends:

1. Further communication with and education of farm businesses, long-term trials of new products and development of a peer-support network of farmers in a collective or mutual model to fund insurance programs.
2. Adoption of the Four Pillars identified in the behavioural science research and progressing with key recommendations from the Report.
3. Government policy makers consider the report findings and work with the project team to build conditions favourable to the uptake of parametric insurance, stability of the insurance market and a financially healthy agriculture economy.
4. Increased education of and by the insurance sector on the value and benefits of parametric solutions for their internal teams and the key sector stakeholders.

Background

Roles of key stakeholders

In the context of variable climate and weather conditions, risk management is an area that requires the cost burden and responsibility to be shared across the private, public and community sectors. This section outlines the roles of three key stakeholders in the design, adoption and sustainability of the parametric index insurance market –

1. Farm Businesses
2. Agriculture industry organisations
3. Government
4. Insurance sector

The responsibility of each stakeholder is to ensure there is a robust marketplace for parametric insurance products. The shared objective must be to mitigate the risk of conditions leading to drought and cumulative natural hazards that have a negative impact on farm productivity and income volatility.

Role of Farm Businesses

Farm businesses are the intended end-users of this project research. The project engagement with farm businesses is integral to developing innovative and fit-for-purpose parametric insurance products.

The project team identify the importance of farm level data and managing crop production decisions that facilitate farm income stability. Crucial to this decision-making process is the role of farm businesses in using tools, techniques and resources such as insurance products to

manage weather and seasonal risks. The aim to increase consistent yield production, profitability and ultimately ensure long-term farm viability.

The ”Local Influencer Network” or LINK mapping exercise undertaken as part of the project, reveals farmers and landholders have the highest number of intergroup connections. Farmers who tend to be innovators using new solutions may be in a position to lead opinion within their farmer communities and industry networks. Their influence in these communities can help persuade other farmers to adopt new technologies or practices through trust and rapport.

Role of Agriculture Industry Organisations

State agriculture organisations and peak industry bodies play a unique role to advocate and influence positive change on behalf of the agricultural insurance sector. Many agricultural industry groups and membership associations are renowned for their comprehensive stakeholder networks and are well respected by the sector and government. The opportunity is there to leverage the existing networks, organisations, and local influential figures to further enhance the drivers and uptake of parametric insurance products.

At a national level, National Farmers' Federation (NFF), undertook research into the risks that affect farmers across all segments of the supply chain, from production through to sales. QFF contributed to three of the six projects.
National Farmers' Federation project reports –
https://nff.org.au/programs/financial-risk-management/

The NFF research report compiled by AITHER, *Final Report, Sub-Project 1: Insurance in the Agriculture Sector* investigated weather risks, such as drought; and non-weather-related risks, for example, variable input and commodity prices. This project focused on understanding when insurance can be viably supplied and beneficially used by farmers to manage weather risks and its impact on farm income. Most importantly, the research identified barriers to adoption including –

- availability of alternate risk management strategies (eg. farmers build equity in good seasons)
- asymmetric information where indemnity insurance can be more attractive to risk-taking farmers and can also motivate farmers to take excessive risks
- managing on-farm basis risk where data is based on the accuracy of the nearest Bureau of Meteorology's (BoM) nearest weather station where data may be a different reading to on-farm weather data.

In the current QFF project, behavioural science consultants, Evidn, provided the project with activity and a Report which outlines the role agriculture organisations and industry bodies. The report suggested focus should be placed on enhancing industry buy-in and clearly defining roles and governance responsibilities of agriculture industry stakeholders. The research concluded –

- Industry associations are well positioned to lead the future development and implementation of parametric insurance products and to support landholders throughout extreme weather events.
- There is opportunity to strengthen connections between groups across the system.
- Industry associations can act as a key coordinator of groups, resources, and engagement activities.

Refer to Project Report - Evidn, Improving Drought Resilience Through Behaviourally Informed Financial Reports – Final Report (June 2024)

Role of Government

There is a role for government to facilitate the development of a robust agricultural insurance market. Any investment must be systemic to ensure the success of the market is supported as a whole, from client to product provider. The project report outlines the opportunities for government to have a role in sharing responsibility for managing climate risk and the affordability of insurance for agriculture businesses. Activities for government outlined in this report include –

- developing improved data sets to measure farm-level weather risks
- encouraging risk pooling methodologies, such as discretionary mutual funds
- facilitate removal from insurance premiums of frictional costs such as stamp duty and GST
- expand the Hazards Insurance Partnership or similar policy initiatives to include agriculture

Role of Insurance sector

There is a need for the insurance market to be robust, adaptable and profitable. Currently, there is a lack of providers willing to service the parametric insurance market in Australia. This may be due to low profitability and the time required to service clients for a customised parametric index insurance solution. There may be a need for intervention to encourage the insurance market to educate clients on the value and benefits of parametric index insurance, especially for crop covers. As background, generally, there are three types of crop insurance available to farming business in Australia:

1. **Single / 'named' peril crop insurance**: typically hail, frost, or fire. This insurance is traditional indemnity-style insurance and is the most widely available, however its availability is declining due to low profitability and the volatility of the Australian weather risk markets.

2. **Multi-peril crop insurance (MPCI)**: typically, whole farm yield loss protection (equivalent to 'all-risks') where exclusions are specified in the policy such as failure to carry out good farming practice. Payout occurs if actual farm-level yields, profit margin or revenue fall below a pre-specified trigger. Again, these products typically fall into the 'traditional indemnity structure' category. Since 2019, the availability of multi-peril crop insurance has become extremely limited widely taken up as a result of a detrimental cycle of adverse selection, poor results and increasing premium costs.

3. **Weather index-based 'parametric' crop insurance**: Based on an index derived from one or multiple weather variables, such as rainfall or temperature. Weather data can be collected from the nearest weather station or synthetic estimates of weather based on interpolation between multiple nearby weather stations and other data sources.
   Weather certificates/derivatives are financial options that fall under the banner of parametric insurance structures. They allow businesses and other organisations to insure themselves against fluctuations in weather. The payout of a weather derivative is based on a weather

index derived from measurements from an official weather station or gridded weather data provided by an agreed independent source. The buyer of a weather derivative can gain an amount as high as the contractual maximum payout, with the loss limited to the full premium amount.

Risk Landscape

Farmers in Australia are subject to highly variable weather conditions, cascading and compounding events across multiple seasons. Low rainfall and long term dry conditions, to natural hazard events such as cyclones and severe storms, floods, bushfire, hail and heatwave can have devastating impacts on crops and sustainable production. Dynamic risk factors and compounding disasters that make it difficult to manage farm income, profitability and the long term viability of the business.

Farmers also experience past bad experiences with insurance claims, often unaffordable increase in premiums (sometimes as a consequence of past events), revised risk rating or a reduction in cover options. These factors compound the recovery time objective and hamper capacity for farmers to manage risk and better prepare for the next season.

With these situations in mind, QFF determined that a different solution must be available to manage business dis-continuity from weather events, including low rainfall, and enable self-reliance. Hence, QFF asks the question, can parametric index insurance be used as a risk management tool to enhance recovery from drought and weather risks – to mitigate yield loss, income instability, secure farm profitability and long term viability.

Explaining risk layering

Throughout the project, the concept of risk layering has been integral to the development of products, communications with farmers and strategies to pool or share the burden of risk amongst the key stakeholders in the insurance market.

Risk layering is a term used in this project to show how varying levels of risk can be defined, segmented, shared or pooled to manage a single risk or compounding, cascading risks.

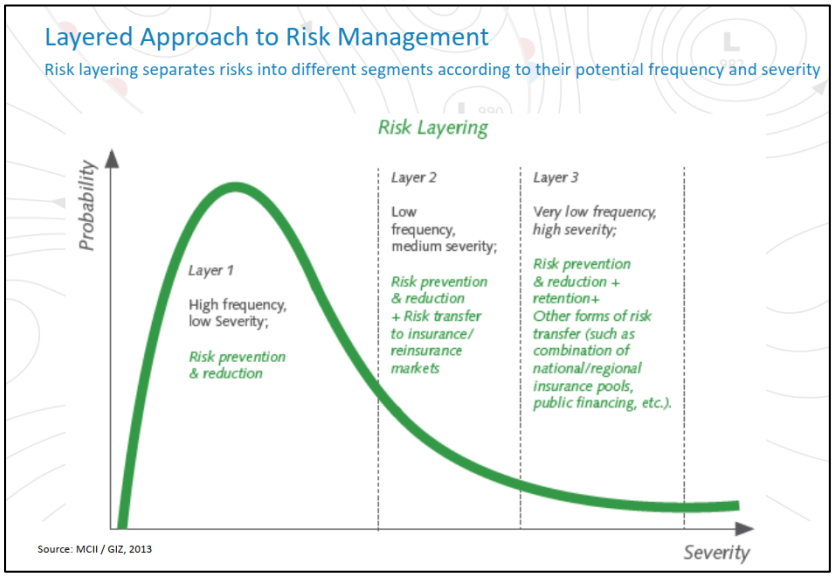


Figure 1 – Layered Approach to Risk Management

Figure 1 describes **allocation of risk**. The model has been developed by The Munich Climate Insurance Initiative (MCII) and the German Association for International Cooperation (GIZ) (2013). Application of this chart to an individual farm provides a measurement of probability over severity to assess an individual farm business risk appetite.

The project team has applied this approach to the Australian agriculture landscape. In this scenario, Layer 1 is a weather event that occurs frequently, but does not cause significant damage and where repair and restore activities are somewhat self-managed by farmers. Here farmers are generally prepared for, and conduct adequate prevention activity pre-season. A Layer 1 event leaves farm production down-and-out for a short period, but farmers may have a rainy day bank account or access to additional feed or stock available to see them through the relatively short recovery timeframe. Here the farmers manages their own risk.

Layer 2 includes an event that happens a little more frequently, causes minor to major damage and loss of production for a short time. The recovery time objective is short, achievable, but farmers do feel pain and there is a sharp financial and physical loss. In Layer 2, farm businesses could use a financial safety net or a parametric crop insurance product. An example could be preparing for an expected low rainfall, dry season, but not having capacity to manage an extended period of severe drought.

Layer 3 refers to an event of very low frequency, but high severity. This might include a Category 4 Severe Tropical Cyclone, or the 2019 low rainfall which led to multiple drought declarations across several states and territories; or 2022 rainfall which led to floods across a number of regions and states.

In Layer 3, we see a sharing of risk reduction beyond just the farmer's capacity; to sharing responsibilities across jurisdictions of industry, communities, state, territory and federal governments. At Layer 3, farm businesses and communities may benefit from other forms of risk transfer, for instance, reinsurance pools, new programs to encourage preparedness for drought, and financial risk mitigation products such as insurance or weather derivatives.

The Risk layering model enhances the concept that **self-reliance** is manageable, and risk is a shared responsibility between various stakeholders interested in the viability of the agriculture sector.

Methodology & Outputs

Collaboration as a guiding principle

The project benefits from a strong working relationship between QFF and the delivery partners. The blend of collaboration between research, through the Centre for Applied Climate Science, University of Southern Queensland (CACS), and insurance industry partners, WTW and Celsius Pro, has enabled the problem to be defined and identify innovative, viable, workable solutions.

The project has benefited from additional analysis from behavioural science specialists, Evidn, appointed to identify the drivers and barriers to adoption of agricultural crop insurance within the wider context of farm financial viability.

Partners

Insurance

The project benefits from expertise of two major insurers, WTW and Celsius Pro.

WTW is an international insurer working with farmers, peak bodies and climate specialists to help agricultural communities improve their resilience to extreme weather risk with cost-effective and sustainable insurance products. Leaders in development of parametric index insurance solutions and models such as discretionary mutual funds, WTW has a long-term relationship with QFF and the research team at UniSQ.

Celsius Pro is an international company, with CelsiusPro Australia dedicated to addressing the unique climatic challenges faced by Australian enterprises. CelsiusPro Weather Certificate products are designed for a range of industries, from agriculture to construction, and a range of weather risks, including cyclone, low rainfall, hail, frost and heatwave.

WTW undertook a comprehensive analysis of the development of parametric solutions to de-risk wheat production in Australia and suggested how such solutions could be implemented to support the agricultural industry in managing its exposure to drought risk. Efficient distribution, risk pooling and risk layering approaches were also explored.

Wheat, as a commodity, was chosen because it is the largest crop grown in Australia by area planted and by tonnage, and is a commodity grown in all states of Australia[1]. Adverse weather conditions such as drought have profound impacts on wheat yield.

In the development of parametric insurance solutions our research considered four different indices that respond to drought: state yield, Normalised Difference Vegetation Index (NDVI) as a yield proxy, rainfall and soil moisture.

The report examined both single trigger and dual trigger parametric insurance solutions based on these four different indices. The most promising approach was the single trigger parametric insurance solution based on state yield. The report analysed the impact of geographic diversification and risk layering on premiums. The analysis concluded that the risk profile of drought impacts on Australia's wheat sector is lowest when combining geographic diversification and risk layering. By implementing both of these approaches there is the potential to achieve substantial premium savings.

Refer to project report, WTW, *Parametric risk pooling options for managing drought in the Australian wheat sector.*

Research

The objective of CACS is to help farmers and organisations in Australia, Asia, the Pacific and beyond, to assess and manage the risks and opportunities they face from climate change, climate variability and both weather and climate extremes. QFF has partnered with CACS for over 8 years to research and provide economic modelling on the viability of parametric crop insurance.

Research conducted with project partner, Celsius Pro, makes a valuable contribution to the contemporary literature by proposing a shift in the perception of insurance from solely a reactive tool for managing drought risk to also serving as a proactive risk management tool.

The study presented in project report, *Phenologically-based index drought insurance*, highlights the potential of innovative phenology-based insurance products that are highly targeted and

[1] https://www.britannica.com/place/Australia/Agriculture

cost-effective. When these products are integrated with optimal crop management strategies, they have the potential to significantly mitigate income volatility during poor (for example, drought) years and increase yield, thereby enhancing income in favourable years.
The results indicate there is a pressing need for more precise and sustainable phenology-based insurance indices. These indices have the potential to play a pivotal role in providing farmers with the means to achieve income stability during periods of drought.

Identifying drivers and barriers to adoption

Behavioural science was identified as a useful tool to help better understand the specific behaviours, attitudes and contextual factors that underpin farmers' decisions to utilise crop insurance products. This may further strengthen adoption across seasons, risks and farmer networks.

QFF engaged Evidn to undertake a Behavioural Systems Analysis (BSA). The BSA is geared towards better understanding the specific attitudinal and behavioural drivers, barriers and contextual factors that influence the adoption of parametric insurance products. Fundamental to the BSA is to also develop insights and recommendations to further strengthen adoption by engaging a representative sample of stakeholders. The analysis included two key input domains:

1. The BSA commenced with a comprehensive literature and desktop review that provided an assessment of the behavioural science evidence relevant to adoption of crop insurance, along with an exploration of prior initiatives that have attempted to increase engagement with parametric insurance and other risk transfer products.

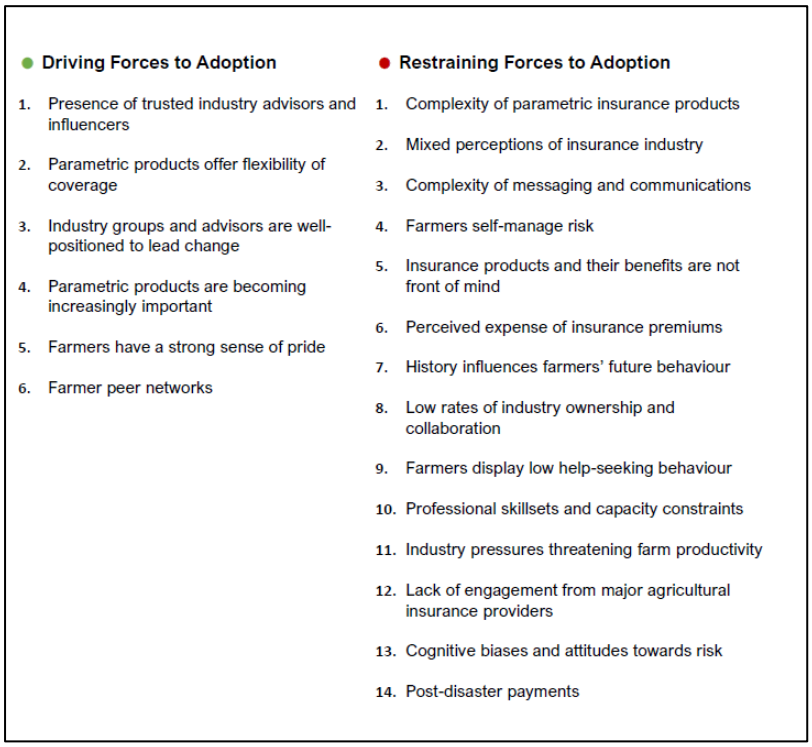
2. A stakeholder mapping and engagement process that involved an assessment of key stakeholder groups, their inter-relations, and behavioural science insights pertaining to how to strengthen adoption of parametric products. The stakeholder engagement process included farmers alongside representatives of QFF, government, industry groups and insurance providers.

The project developed the "Local Influencer Network", or LINK, assessment map which aims to represent patterns of connections and relationships between individuals, organisations, and stakeholder groups. An array of insights can be taken away from the map, including an assessment of stakeholder influence, centrality, and closeness within a social network. The maps comprise a network of boxes and lines where a box represents a level of stakeholder and a line demonstrates a social connection.

Refer to Figure 5 (pg 36) of the project report by Evidn, June 2024– *Improving drought resilience through behaviourally informed financial products – Final Report*

The LINK assessment is designed to help better understand the different groups involved in the agricultural insurance industry to identify which are key to engage with as part of future change activities. It is also a useful tool for extracting potential influencers or leaders in a system that can help drive a behaviour change program. The LINK map showed 25 groups or organisations engaged within the program yielded 54 meaningful connections. LINK is a useful tool for extracting potential influencers or leaders in a system that can help drive a behaviour change program. It is designed to be a live document and updated throughout the implementation of a behaviour change intervention to understand and record connections between key groups in the network.

The outcomes of the analysis resulted in several key findings that include the identification of six driving forces and 14 restraining forces towards the adoption of parametric insurance products, shown in the report extract below.



Driving Forces to Adoption

1. Presence of trusted industry advisors and influencers
2. Parametric products offer flexibility of coverage
3. Industry groups and advisors are well-positioned to lead change
4. Parametric products are becoming increasingly important
5. Farmers have a strong sense of pride
6. Farmer peer networks

Restraining Forces to Adoption

1. Complexity of parametric insurance products
2. Mixed perceptions of insurance industry
3. Complexity of messaging and communications
4. Farmers self-manage risk
5. Insurance products and their benefits are not front of mind
6. Perceived expense of insurance premiums
7. History influences farmers' future behaviour
8. Low rates of industry ownership and collaboration
9. Farmers display low help-seeking behaviour
10. Professional skillsets and capacity constraints
11. Industry pressures threatening farm productivity
12. Lack of engagement from major agricultural insurance providers
13. Cognitive biases and attitudes towards risk
14. Post-disaster payments

Figure 2 – Driving and Restraining Forces to Adoption, Evidn, 2024, p39

Driving forces included the strong relationships developed with trusted advisors, and the unique strategic position of particular industry groups for influencing greater uptake of parametric products.

Restraining forces centred on farmers' belief that a latent insurance product exists (i.e., from the government) to support them through weather events, the complex messaging across the industry, and the need for greater industry leadership.

Evidn took the 14 identified restraining forces and developed a matrix on page 49, presented below. Interestingly, the project partners each had different opinions on the weighting of the forces. For example, QFF believes the impact of premium pricing on the decision to purchase insurance (Force #6 " Perceived expense of insurance premiums"), should be weighted higher up the Impact scale.

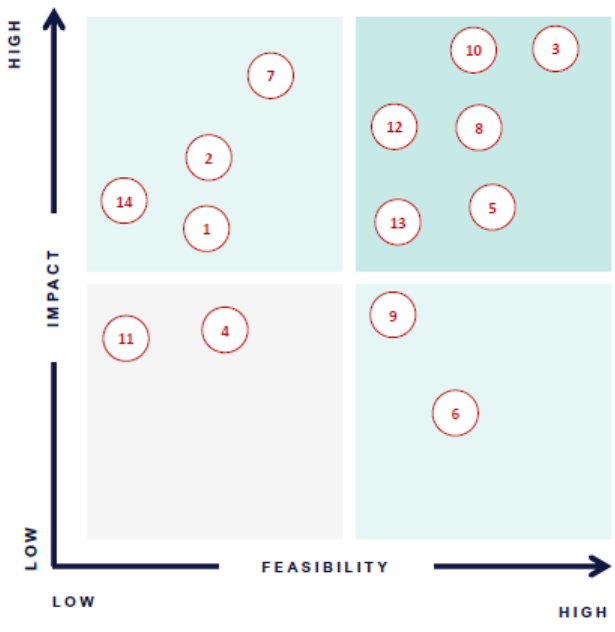


Figure 7. Restraining Forces categorised as a function of feasibility and impact.

1. Complexity of parametric insurance products
2. Mixed perceptions of insurance industry
3. **Complexity of messaging and communications**
4. Farmers self-manage risk
5. **Insurance products and their benefits are not front of mind**
6. Perceived expense of insurance premiums
7. History influences farmers' future behaviour
8. **Low rates of industry ownership and collaboration**
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10. **Professional psychosocial skillsets and capacity constraints**
11. Industry pressures threatening farm productivity
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13. **Cognitive biases and attitudes towards risk**
14. Post-disaster payments

For more information, refer to project document Evidn, June 2024– *Improving drought resilience through behaviourally informed financial products – Final Report*

External collaboration benefits

During the project, research outputs received interest from external stakeholders such as the Bureau of Meteorology (BoM) and University of Queensland (UQ) and international associations in risk management.

The hail plate monitoring trial attracted interest from BoM and UQ. The project team was invited to speak at the *Science-industry workshop on severe convective storms* held August 2023 at UNSW Sydney. The workshop brought together scientists and industry colleagues working on severe convective storms across disciplines. The intent was to forge deeper connections between science and industry through presentations, open discussion, identification of shared challenges, and future planning. During the 2023 hail season, the project team worked with UQ, BoM, and the hail plate provider Hailios, to confirm hail impacted sites where the plates were situated. As a result of this collaboration, new project funding and expansion of the hail plate

trial to the UQ and BoM HailNet sensors and weather stations was provided through the Queensland Resilience and Risk Reduction Fund (QRRRF) investment round.

The project team also received interest from other Future Drought Fund initiatives including the SQNNSW Drought Hub, Rural Economies Centre of Excellence (Regional Drought Resilience Plans) and industry groups such as the NSW Farmers Federation.

Other organisations interested in this research included The Weather Risk Management Association (WRMA), which is a trade association representing the global market of weather risk management professionals. WRMA's major contributions to the development of the weather risk market include standardization, market expansion and access enhancement.

Often, these groups provided opportunity for the project team to speak at conferences or present at workshops. Celsius Pro presented findings from the research at the 5th Global Food Security Conference towards equitable, sustainable and resilient food systems 9-12 April 2024, Leuven, Belgium.

CACS researchers also presented findings at conferences and workshops, including –

- Queensland Disaster Management Research Forum 2023, Inspector-General of Emergency Management, Brisbane
- Climate Adaptation 2023, National Environmental Science Program, Adelaide
- AMOS 2024, 30th Conference of the Australian Meteorological and Oceanographic Society, Canberra

Outcomes

Over the medium to long term, we expect the research and work undertaken as part of the project to increase the availability and accessibility of parametric insurance products for agricultural businesses.

The project has developed parametric insurance for a more diverse range of commodities where products had previously not been available eg. the horticulture industry (with specific focus on the pineapple industry). These commodities now have access to parametric products that cover low-rainfall but also multi-risk which may also include heat-stress, frost, hail and/or cyclone.

Farmers who tend to be innovators using new solutions may have capacity to lead opinion within their communities and industry networks. Their influence may help persuade other farmers to adopt new technologies or practices through trust and rapport.

Recommendations

Farm Businesses

Farm businesses are well positioned to lead a community of farmers to adopt parametric crop insurance products. Opinion leaders who participate in trials and projects are able to provide valuable feedback to farming industry organisations, insurance sector and government on the benefits and also barriers to adoption.

The project recommends further communication with and education of farm businesses, long-term trials of new products and development of a peer-support network of farmers in a collective or mutual model to fund insurance programs.

Farming industry organisations

Regional associations and industry groups who advocate for the interest of farmers are often well-connected and are trusted sources of information. There is opportunity for farming industry organisations to undertake activity that continues the research work of this project, using their level of influence and standing within the agriculture community.

Behavioural science consultants, Evidn, identified four (4) Pillars to encourage further development and uptake of parametric insurance. These are -

1. Support Industry Ownership – to bolster levels of collaboration amongst industry leaders and bring together various stakeholders under a common goal.
2. Embed Best Practice Engagement Principles – to leverage existing design and communication principles, enhance the effectiveness of industry outreach and impact of engagement strategies.
3. Enhance Industry Capacity – to enhance the capacity of various industry staff and trusted advisers to effectively engage farmers in discussions regarding insurance products.
4. Enhanced Collaboration and Partnerships – to leverage existing industry networks to drive coordination of efforts and ensure long-term engagement with insurance products.

Evidn, June 2024– *Improving drought resilience through behaviourally informed financial products – Final Report*

The project recommends adopting the Four Pillars identified in the research and progressing with key recommendations from the Evidn Final Report.

Government

There is a distinct role for the Australian Government in securing farm financial viability beyond initiatives already delivered. Below is a list of mechanisms which enable uptake of parametric insurance and stability of the insurance sector to support research and product development.

1. **Enhanced data collection.**
   Support for the provision of increasing data collection, verification and supply systems needed to refine risk models and reduce information asymmetries. The intended consequence of this would be to reduce the impact of basis risk. For example, a case study based on 13 farmers in northern NSW between 2016 and 2019, found that farmers would have missed insurance payouts for drought about 24 per cent of the time, if their policies were based on the nearest Bureau of Meteorology (BoM) weather station**Error! Bookmark not defined.**. The Australian Bureau of Statistics (ABS) in collaboration with ABARES are investigating new data sources that will improve regional level crop yield data on an annual

basis[2]. There is potential to use this data to help structure a regional programme, but this would require more years of reporting (beyond 2023) and confidence that this data will be reported consistently and accurately. Consistent reporting of regional level data will have benefits beyond insurance solutions. A more robust and granular dataset on farmers' yields will allow more detailed analyses, allowing for better planning, management, and decision making for the agricultural sector. This will further facilitate access to tools and education for example, a farm-level, user-friendly digital platform that enables farmers to better define and mitigate weather-related risks. Further resourcing and collaboration with the insurance and agriculture industries is a crucial role for government.

2. **Encouragement for risk pooling models**
   Support for the development and commercialisation of risk pooling methods such as a Discretionary Mutual Model. Support the further development of the parametric insurance industry by facilitating a reinsurance vehicle, for example, through the Australian Reinsurance Pool Corporation. Reinsurance is the practice whereby insurers transfer portions of their risk portfolios to reinsurers to limit their own exposures and claims. Reinsurance allows insurers to remain financially stable, particularly following a large event or series of events[3], however as discussed previously the reinsurance market in Australia is particularly thin, resulting in a fragility of the market. The Government could also act as the sole reinsurer or could share the risk with private reinsurers. If government can provide protection at terms more economic and consistent than the commercial reinsurance market, this will help reduce and stabilise the premiums offered to farm businesses. These technical premiums can be reduced by:

   - Geographic diversification, i.e. writing the risk as a portfolio rather than on a state-by-state basis.
   - Using reinsurance (risk layering) to protect the scheme in extreme scenarios.

3. **Facilitate removal of frictional costs across states**
   Facilitate the removal frictional costs such as stamp duty and GST from insurance premiums which currently adds ~20% to the premium cost for farmers in QLD, WA and SA and 10% for farmers in NSW and VIC. The application of taxes such as stamp duty on crop and parametric insurance is a further contributor to the cost of insurance.

   QFF, Cotton Australia and other agricultural peak bodies have been advocating for the removal of stamp duty on crop and parametric insurance to support farmers in managing their own business risk. The 9% stamp duty on these insurance products is an additional barrier to primary producers managing their own risk, increasing reliance on government support. These frictional costs further increase the cost to farmers and act as a disincentive to insurance purchasing. Given the different frictional costs that currently apply across the states, any national insurance programme would need to have frictional costs such as stamp duty removal applied consistently to ensure equity between the states.

[2] ABS Statistics on the production and value of a range of broadacre crops 2022-2023
[3] Australian Reinsurance Pool Corporation – About Us

4. **Expand Hazards Insurance Partnership to include Agriculture**
   To ensure effective collaboration with the insurance sector to safeguard the availability of the risk transfer market for agriculture, government should consider expanding the membership of the Hazards Insurance Partnership (HIP). The HIP membership should include representatives that have a detailed understanding of the unique insurance affordability and availability challenges that confront farming businesses.

The project recommends government policy makers consider these findings and collaborate with QFF and the project team which will lead to education and conditions favourable to the uptake of parametric insurance, stability of the insurance market and a financially healthy agriculture economy.

Insurance industry

Farm business owners and regional community leaders often report an aspiration (or indeed a requirement) to 'build back better' in an effort to build resilience. This may be hindered due to insurance covering a 'like for like' replacement. With a policy focus on continuous improvement and better preparedness by landholders, at a minimum it is important that traditional indemnity insurance policies are written in such a way that they allow for resilience building in the replacement of assets. Additionally, support of the development of the parametric insurance market with its ability for customisation and relatively quick access to payouts post-disaster, can aid farmers to use the funds for any purpose on farm – there are no restrictions on use – enabling businesses to return to production in a short period of time. There is a need for the insurance market to build capacity to service farm business clients that need a single or multi-risk parametric solution.

The project recommends insurance sector increase education of insurance sales teams about the prospects of parametric solutions, learn of the benefits of customisation and time required to service the policy to build relationship as a trusted adviser to farmers.

In summary, this project recommends:

1. Further communication with and education of farm businesses, long-term trials of new products and development of a peer-support network of farmers in a collective or mutual model to fund insurance programs.
2. Adoption of the Four Pillars identified in the behavioural science research and progressing with key recommendations from the Report.
3. Government policy makers consider the report findings and work with the project team to build conditions favourable to the uptake of parametric insurance, stability of the insurance market and a financially healthy agriculture economy.
4. Increased education of and by the insurance sector on the value and benefits of parametric solutions for their internal teams and the key sector stakeholders.