



18 September 2012

Mr Mick Keogh
Chair, National Rural Advisory Council (NRAC)
c/o NRAC Secretariat
Department of Agriculture, Fisheries and Forestry
GPO Box 858
Canberra ACT 2601

Dear Mr Keogh

RE: NRAC Assessment of agricultural insurance products including multi-peril crop insurance and its feasibility in Australia

The National Farmers' Federation (NFF) is pleased to provide feedback (attached) to the above review. With Australia drought free for the first time in ten years it is important to review the lessons learnt during that period and take the best from pre-existing measures and transition away from less effective measures.

The NFF would like to ensure a future package of drought support measures provides both certainty and effectively equips primary producers and farming communities to deal with climate related challenges. The NFF views that it is timely to consider the inclusion of drought insurance in a future drought policy package.

NFF encourages NRAC to review the recommendations that are outlined in this submission.

Should you wish further clarification, please do not hesitate to contact David McKeon at the NFF Office on 02 6269 5666.

Yours sincerely

A handwritten signature in black ink, appearing to read "Matt Linnegar".

MATT LINNEGAR
Chief Executive Officer



National Farmers' Federation

Submission to

**National Rural Advisory Council Assessment of
agricultural insurance products including
multi-peril crop insurance and its feasibility in
Australia**

September 2012

NFF Member Organisations



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1. The National Farmers' Federation

The National Farmers' Federation (NFF) is the peak national body representing farmers and, more broadly, agriculture across Australia. It is one of Australia's foremost and respected lobbying and advocacy organisations.

Since its inception in 1979, the NFF has earned a formidable reputation as a leader in the identification, development and achievement of policy outcomes - championing issues affecting farmers and the advancement of agriculture.

The NFF is dedicated to proactively generating greater understanding and better-informed awareness of farming's modern role, contribution and value to the entire community. One of the keys to the NFF's success has been its commitment to presenting innovative and forward-looking solutions to the issues affecting agriculture, striving to meet current and emerging challenges, and advancing Australia's vital agricultural production base.

The NFF's membership comprises of all Australia's major agricultural commodities. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations collectively form the NFF. The 2009 re-structure of the NFF has enabled a broader cross section of the agricultural sector, including the breadth and the length of the supply chain, to become members through an associate member category.

Each of the state farm organisations and commodity council's deal with state-based 'grass roots' issues or commodity specific issues, respectively, while the NFF represents the agreed imperatives of all at the national and international level.

2. Introduction

Australian agriculture competes with other sectors of the national economy for human, land and capital resources; while making a significant contribution to export earnings of around \$40 billion per annum. As part of that cross economy investment process, business or sector volatility is an important consideration.

There is a large amount of variability between agricultural commodity groups, but overall Australian agriculture is and remains, the most volatile sector of the Australian economy over the past four decades¹. The value of output from the agriculture sector has been almost two and a half times more volatile than the average for all the major sectors of the economy. Further, data indicates that the volatility of Australian agricultural businesses has been the second highest of any nation over the 40 year period. That is, Australian farm businesses have faced a more risky operating environment that has been the case anywhere in the world over the last 40 years. Despite this challenge, Australian farmers have consistently found productivity improvements greater than other sectors of the economy and sought to meet the community expectations around running environmentally sustainable enterprises.

Accordingly, this evidence would suggest that Government expectations around regular or normal business risk management practices may not be appropriate or as useful for the agriculture sector. However, even though their operating environment is extremely volatile, Australian farmers are much more self-sufficient of Government income supports than their international competitors, while our Government rightly pursues a trade liberalization agenda. At 3% of total farm income, Government agricultural support to producers in Australia is now the second-lowest in the OECD.

While there is general agreement that seasonal variability is a normal feature of the farmers' operating environment and should be managed like any other risk, in recognition of the severe volatility of performance of the Australian agriculture sector even the best farm manager cannot be expected to cope through some severe or prolonged drought situations. It is appropriate that the Government provides drought policy to these businesses in a consistent, structured manner, providing certainty to the businesses impacted by the drought and the taxpayer providing the assistance. Such assistance supports broader Government policy objectives around sustainable environmental management, strengthening rural and remote communities and ensures a quicker return by drought affected businesses to profitability and subsequent revenue generation to Government.

Taking the above considerations into account, it is pertinent to look at all potential risk mitigation measures for the agriculture sector. Apart from insurance for fire and hail damage, there are currently limited options for agricultural producers to insure themselves against production risk in Australia². The large gap in the current insurance market is coverage for one of the major drivers of crop failure – drought and rainfall extremes.

¹ Including Risk in Enterprise Decisions in Australia's Riskiest Businesses, Mick Keogh AFI, Farm Policy Journal vol9. No.1 Autumn 2012.

² Government Drought Support, Productivity Commission, Report No. 46, Final Inquiry Report, 2009.

Despite the high risk profile and the absence of commercially available drought insurance products, Government's in Australia have avoided considering assistance to the development of an insurance based product to assist farmers manage their exposure to the risk of drought. However, in looking at international competitors and some of our major trading countries, the prevalence of Government-supported weather insurance based products is much more common.

The NFF strongly supports NRAC's assessment as part of the drought policy reform process. Whether a suitable drought insurance product appropriate for Australian farmers can be developed, is a question that requires much consideration. The NFF views that drought insurance should not be looked at in isolation, but as part of the holistic suite of measures required to deliver the outcomes of drought policy reform. NRAC's assessment must consider whether the current (and proposed) policy mechanisms would achieve the required level of support for those farmers most in need during times of drought. NRAC will have to consider examples like: would a viable broadacre mixed farmer who has just drawn down on their equity and expanded their operation be adequately supported through the next drought?

Overall, the NFF expects that NRAC's assessment of agricultural insurance products should focus more on the opportunities, rather than just the challenges that currently exist and the assessment should also highlight any particular areas where further information or research is required.

NRAC Assessment of agricultural insurance products, including multi-peril crop insurance and its feasibility in Australia

Supported by DAFF, NRAC is undertaking an assessment of agricultural insurance products that could cover weather driven agricultural production downturn. The assessment, carried out from July to September 2012, includes potential insurance products such as multi-peril crop insurance, weather derivatives, yield indexes and mutual cost of production programs. The assessment aims to determine the feasibility and practicality of implementing these products in Australia. NRAC's findings will inform the Government's deliberations on drought reform and will be handed to the Commonwealth Minister for Agriculture, Fisheries and Forestry by 28 September 2012.

The specific considerations within the assessment include the following:

1. Review all relevant literature to make a determination on the suitability and practical requirements of these products to assist weather driven risk management practices, including an analysis of any past and existing trials of relevant crop insurance products.
2. Detail the challenges, for both industry and government, associated with implementing these products. For example:
 - The ability of the product to cover the whole sector (e.g. the variety of crops that could be covered under multi-peril crop insurance).
 - The ability of the product to cater for different production systems and geographical areas (e.g. availability and/or collection of data required to underpin these products, including analysis of the costs and logistical difficulties involved).

- The administrative and financial requirements that would be required of the participating farmers.
 - How these products would perform in a geographically widespread or a multi-year drought event.
3. Provide advice on the feasibility and the likelihood of these products being commercially viable or the requirement for initial and ongoing government assistance if not commercially viable.
 4. Canvas the views of key stakeholders.

These will be considered throughout this submission.

3. Expected scope of NRAC review

There is no doubt that designing a robust drought insurance scheme isn't easy. If it was, the marketplace would have already delivered. However, the bad reputation that agricultural insurance products have earned is not totally deserved and underwriting crop insurance is probably one of the most difficult classes of general insurance, but everything is insurable at the right premium³.

It will be NRAC's role to determine the suitability and practical requirements of agricultural insurance products to assist weather driven risk management practices. In undertaking its assessment, it is expected that NRAC will also look at future opportunities, in addition to the success or otherwise of any past and existing trials.

Weather-based insurance type programs exist in a range of countries, and although there are considerable differences in coverage and public sector involvement, these are examples of governments putting systems in place to support the viable continuation of food production. It is expected that NRAC will undertake an assessment of these, outlining the different approaches that have been taken by international governments. As these policies are constantly evolving, it is expected that NRAC will not just rely on previous reports undertaken to inform policy development in Australia, but revisit international schemes for current information.

Some countries (including United States, Canada, Mexico, Spain, Japan, France) directly subsidise crop insurance to different extents with different arrangements. However, the level of subsidy is not the only important element determining the impacts of a given insurance system. The nature of arrangements in terms of facilitating information sharing, reducing the scope for moral hazard and adverse selection, increasing competition in the insurance market, creating trust in the insurance system, and affects other government programs and payments, are also important elements to analyse⁴.

It is expected that NRAC will look at opportunities the wide variety of potential drought insurance (and similar financial instruments) arrangements, a key list of which are provided below, as adopted from the Productivity Commission 2009 Review of Government Drought Support⁵.

Multi-peril crop insurance (MPCI):

Insures farmers against multiple risks including drought, flood and disease. As the extent of loss is established after the crop is harvested it can be difficult to determine the cause. MPCI involves problems of systematic risk, asymmetric information and moral hazard. Studies in Australia concluded that MPCI would not be commercially viable without significant government assistance⁶⁷⁸.

³ A conceptual report for Revolutionary Crop Insurance in Australia, David Blackett, 1999.

⁴ Managing Risk in Agriculture – A Holistic Approach, OECD 2009

⁵ Government Drought Support, Productivity Commission, Report No. 46, Final Inquiry Report, 2009.

⁶ Crop and Rainfall Insurance, Industries Assistance Commission, Report no. 393, 1986.

⁷ MCPI Report to the WA Ministry for Agriculture, Fisheries and Forestry, MCPI Taskforce, 2003.

⁸ Multi Peril Crop Insurance Project Phase Two Report: Assessing the Feasibility of Establishing Multi Peril Crop Insurance in Australia, Ernst and Young, 2000.

Rainfall insurance:

Avoids problems of asymmetric information and moral hazard through tying indemnities to a measurable and verifiable event, in this case rainfall. Consequently, it can be offered at lower premiums. However, for farmers to purchase rainfall insurance, rainfall would need to be closely correlated with incomes or yields, otherwise it would not sufficiently indemnify farmers against income losses.

Yield index insurance:

Attempts to more closely correlate indemnities with variations in income due to rainfall, through a non linear model of yields as a function of rainfall. However, this product does not fully insure farmers against income losses. Yield losses may also be a result of heat and cold, not just rainfall; and yield may be more sensitive to the timing of rainfall not just the total rainfall for the growing season⁹. The complexity of yield insurance is a deterrent to its widespread use in Australia.

Weather derivatives:

Involve payouts derived from an observed event, such as district rainfall, temperature or the southern oscillation index. The difference between what the derivative is derived from (for example rainfall recorded at a specific station) and a farmer's own set of conditions (yield as a result of rainfall and other environmental conditions on-farm) is indicative of how well the derivative will insure the farmer. Derivatives need to be fairly generic if they are to be readily tradable, and are generally sold at high values. As a result they may not be flexible enough or sufficiently aligned with the farmer's circumstances to be attractive.

The Productivity Commission¹⁰ also noted that there do not appear to be any significant examples of fully commercial MPC, rainfall or yield index insurance schemes anywhere in the world.

Without a clear understanding of costs, it will be difficult to assess the potential, both commercially and what level of Government intervention may be required to underwrite a drought insurance scheme. The modelling of a potential scheme will therefore be an important part of the assessment. The NFF would see market research as an important part of this modelling exercise.

Interaction with existing Government policy intervention will also need to be considered by NRAC. It is important that interaction with past and potential drought policy approaches is considered in assessing the suitability of insurance for assisting with drought management. Ultimately, the value of a drought insurance product has to be assessed against alternative measures for assisting farmers to cope with the increasing variability of Australia's climate.

9 Prospects for insuring against drought in Australia, From Disaster Response to Risk Management: Australia's National Drought Policy, Hertzler, G, 2005.

10 Government Drought Support, Productivity Commission, Report No. 46, Final Inquiry Report, 2009.

4. Overcoming challenges

A number of concerns are raised about Government participation in an insurance based scheme in the Productivity Commission report on Government drought support¹¹. It is important that each of the concerns are revisited for their current relevance, given the Government's recent removal of interest rate subsidies and the current lack of clarity in future drought policy in the face of increasing climate variability. For example, the concern that the existence of current drought policies would provide a disincentive to purchase insurance, needs to be re-evaluated in the current drought policy reform context.

One of the key issues with MPCCI crop insurance, or even drought insurance, historically, has been the potential size of the premiums. This is the combined result of a number of factors:

- The level of risk associated with highly variable rainfall across Australia;
- The critical mass required by insurance companies to sustain a product that survives through high rainfall seasons, as well as drought period;
- The basis risk borne by the farmer of the relatively poor correlation between rainfall and income;
- Adverse selection. I.e. individuals who are at a higher risk of crop failure (for a number of reasons) will be more inclined to take out insurance, whereas the converse is also true. Insurers, unable to differentiate between the high risk and low risk individuals (due to information asymmetries) are forced to increase premiums; and
- The moral hazard associated with crop failure. I.e. if you're insured against crop failure, there is a perverse incentive to not manage crops in a manner similar to that if you didn't possess insurance.

It is expected that in its review, NRAC would identify opportunities to overcome each of these challenges. Some comments and considerations on some of these issues are provided below.

Systemic risk

Systemic risk relates to the size of the insurers pool and their potential exposure to risk. Drought insurance is highly exposed to systemic risk given the possibilities that large areas of Australia will be exposed to drought at the same time. It is unlikely that any commercial drought insurance program could have survived the recent prolonged droughts in Australia. To avoid this problem Government must underwrite the risks, or reinsurance must be brought from global insurers to diversify the risks away from agriculture and away from Australia.

A national system with compulsory participation would also reduce some of this systemic risk. Similar to other countries where insurance programs operate, the Government must play a role. It is expected that through a co-contribution process the total exposure of Government to costs of drought support could be significantly reduced from previous ECIRS commitments. However, it is also noted that compulsory participation is unlikely to be palatable to the entire farming population and is inconsistent with the approach that

11 Government Drought Support, Productivity Commission, Report No. 46, Final Inquiry Report, 2009.

different mechanisms are required for different risk management strategies depending on the individual circumstances of farm businesses.

Basis Risk

Basis risk exists where the measured outcome does not correlate to the identified variable on which the insurance is based. For example, the yield of a farmer may not be directly correlated to rainfall and as a result in some years where there has been low rainfall yet the farmer still may produce an acceptable yield, they may receive a reasonable income plus a potential insurance payout.

An insurance scheme based on rainfall events does inherently introduce basis risk, with different farmers being able to extract different outputs out of the same rainfall; however these would be relative in an ongoing process. Further, there are possible problems with the coverage of rainfall data. Given the high variability of rainfall between locations, the network of recording stations would need to be comprehensive to ensure accurate representation of risk exposure.

To compensate for this, a yield index – a non linear model of yields as a function of rainfall – can be used. This removes the basis risk of a particular level of rainfall being used as a proxy for income levels, by mapping yield against rainfall a more accurate picture of the actual effect of reduced levels of rainfall can be determined. As the prediction levels of yield increase as a function of rainfall, the lower the basis risk.

Another way to reduce the basis risk borne by the farmer can be taking out insurance on a monthly – as distinct from annual – rainfall at critical times (say at planting time and during spring) and also taking out insurance on monthly temperatures, including cover for severe frosts¹².

Adverse selection

Adverse selection or hidden information, arises when one party knows more than the other. In this case the farmer has a greater understanding on the performance and prospects of his crop or output than the insurer. Where the insurance scheme is based on area yields or average yields, in each case the farmer will have greater knowledge than the insurer. The CBH Mutual Cost of Production product¹³ was questioned based on the availability of data, with CBH having to rely on their own collection information for each farm rather than district production.

Although adverse selection appears to be a major impediment to the development of agricultural insurance products, the existence of products such as hail insurance reflects that this may be overcome. One avenue to reduce the risk is improving weather and climate information, so the insurer is in a better position to accurately determine the risk profile of the farmer.

Moral Hazard

Moral hazard or hidden action arises when one party can subvert the outcome of a trade once the detail has been struck. The problem with traditional MPCCI schemes is that the payout is based on a yield or production factor which while susceptible to climatic

¹² Managing the Risks of Climate Variability in Australian Agriculture, RIRDC Publication 09/014, 2009.

¹³ <https://www.cbh.com.au/our-business/value-chain-partners/cbh-mutual-2012.aspx>

variation is also exposed to management and operational decisions by the farmer. Traditionally to cover this insurers have only insured against a proportion of the crop.

Overcoming the risk of moral hazard would be a major consideration in the development of any agricultural insurance scheme. However, there are ways in which this could be achieved. For example, the scope of cover of an insurance scheme will have a bearing on the potential exposure to moral hazard and can be designed in such a way to minimise the risk and focus cover on natural perils beyond a grower's control.

If the determining variable for the payout of insurance is removed from a production or price basis and attached to an independent external variable such as rainfall it will remove the possibilities of moral hazard. With information collected by a third party, being the Bureau of Meteorology the transaction costs are low and the ability to influence results is low.

Another approach to minimise moral hazard risk may be to only cover a lack of "in crop" rain. Under this approach drought cover would only start when the crop achieved a pre-agreed growth stage. This would leave the risk and decision on when to plant and the skill of the individual grower while still removing the unknown risk of an established crop failing due to the lack of "in crop" rain¹⁴. Although this approach has downsides and would not be as appealing to growers, it does demonstrate the ability for some of the perceived challenges to be overcome.

¹⁴ A conceptual report for Revolutionary Crop Insurance in Australia, David Blackett, 1999.

5. Product coverage

There are many perils that need be considered for coverage under a drought insurance scheme. As already outlined, coverage exists for fire and hail, but not much else. Consideration needs to be given whether a scheme covers a multitude of perils, or whether a scheme based on specific risks, such as rainfall would be more appropriate.

The complexity of a system will also have implications for the potential of adverse selection concerns. This complexity comes from the multitude of perils that need to be considered and how these perils interact. Some perils are mutually exclusive (like water logging of crops and drought) and others change to exposure to other perils (like rain that delays and interrupts sowing, which potentially reduces yield but also delays the crop thus reducing the frost risk). Increasing the complexity of the risk assessment by including a multitude of risks reduces the potential for adverse selection, as there are too many variable involved¹⁵.

In addition to variable and often extreme climatic conditions, agriculture across Australia is a complex mix of operations, delivering a diverse range of products via a wide variety of production systems. For administrative simplicity, it would be worthwhile considering the feasibility of drought insurance dedicated to a particular sector, such as cropping. However, this would be inequitable to other operations, such as livestock graziers and horticulturalists. Limiting the scheme may also not provide the spread of risk required for the scheme to reach critical mass.

¹⁵ A conceptual report for Revolutionary Crop Insurance in Australia, David Blackett, 1999.

6. Improved climate and weather information

A key limitation to the development of agricultural insurance products is the available information on weather. A lack of information leads to difficulties in effectively underwriting a scheme and increases the risks of adverse selection.

The Productivity Commission¹⁶ outlined that it is likely that markets will develop for risk sharing products like yield index insurance and weather derivatives in the future with technical progress in global information gathering and processing, improved understanding of climate and weather and greater integration of capital markets. This assumption relies heavily on increased investment and improvements in climate and weather information.

While perfect weather information is unattainable in the near future, improved information would vastly improve the ability to accurately develop an insurance scheme. The NFF has continued to advocate for increased investment to improve seasonal climate forecasts and improved access to historical climate information. Increased investment in these areas would not only assist with the development of agricultural insurance products, but would more broadly achieve improved climate risk management by providing farmers increasingly accurate information to base farm management decisions on.

The NFF views that investment in improving seasonal climate forecasts must have a strong extension component to ensure the information delivered through seasonal forecasts is accessible and understood by farmers. The extension component must be linked to existing research, development and extension programs, particularly the Managing Climate Variability Program.

¹⁶ Government Drought Support, Productivity Commission, Report No. 46, Final Inquiry Report, 2009.

7. Conclusion

At this point in time, the decision remains on what would be the most appropriate policy mechanism for the Government to focus its drought support expenditure. Although there are some challenges that would need to be overcome for the development of a drought insurance product, this needs to be considered in context of the broader need for support and limited available options.

The Government will have to consider whether their suite of policy measures would be appropriate for range of farmers in need of assistance. For example, a recent entrant to a broadacre cropping enterprise may not have the ability to adequately prepare for an extended drought period and the policy mechanisms delivered by Government will need to account for this.

There are a wide variety of views among NFF members on the feasibility of commercial drought insurance products and the appropriateness of Government involvement in the development of such products. Overall, many NFF members would be happy not to consider Government assistance to develop agricultural insurance products if adequate products were available in the market and if Government remained committed to assisting the agricultural sector through other means, such as a well-resourced package of drought policy measures with flexibility for the wide-variety of agricultural businesses.

With any product, farmers will still need to consider their individual risk requirements and consider a risk management approach that suits their individual needs. The NFF is not in a position to outline the uptake of a drought insurance scheme and would see market research as an important part of modelling during Government's consideration of development of a drought insurance product.

It is therefore recommended that NRAC encourage the Australian Government continue the consideration of a Government-supported drought insurance scheme in Australia, not in isolation, but as part of broader drought policy reform. This consideration must not only examine the past failures or limitations of international schemes, but must model a potential scheme suitable for the Australian operating environment, consistent with the broader principles of drought policy reform.

There are a number of concerns and opportunities outlined throughout this submission. The NFF looks forward to consideration of these as NRAC finalises their assessment of agricultural insurance products.

8. NFF Contact

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