

## Increasing take up of multi-peril crop insurance with a 150% (R&D style) tax incentive

### Executive Summary

#### *The financial picture*

- Winter crops in Australia contribute approximately \$12-15bn to the Australian GDP
- Taking into account regional multipliers and the impact on regional economies, a winter drought can have an \$18bn impact on the Australian economy, or 1% of GDP
- At times that may be enough to push the Australian economy into a recession
- In terms of the overall GDP, the farming sector is not large, however due to the variability of income, the impact of drought can have a significant impact on GDP growth rates in any one year

#### *Mitigation of drought risk*

- Drought risk is not managed well in Australia from the perspective of the farmer, the community or the state and Commonwealth governments
- Drought exacts a financial and social cost on enterprises and communities
- Other countries with a reliance on primary production (Canada for example) have approximately 80% takeup of commercial multi-peril crop insurance (MPCI) now referred to as “income protection” for farmers
- In drought years MPCI replaces the lost revenue from crop sales, thus insulating farmers, communities and governments from the flow on effect

#### *Improving financial outcomes*

- The IPART report to the NSW State Government concluded that MPCI could influence farm management decisions related to crop inputs and hence improve productivity
- In addition, MPCI enables a farmer to employ better forward selling options thus improving marketing outcomes

*A 150% tax incentive on MPCI premiums could deliver financial mitigation of drought risk as well as improve financial outcomes to farmers with a 7:1 return to the Commonwealth Government in terms of increased tax receipts compared to foregone tax revenue on the additional tax incentive. Therefore it is a strategic investment by Government, rather than an outlay.*

## Background

Winter crops in Australia are a \$A12-15billion per annum business and as we have seen from the past, subject to the perils of drought, flood, hail and fire and other natural disasters, as well as the ravages of the global commodity markets, not to mention currency markets. So when farmers roll the dice on their winter crop strategies, it is a \$A12-15billion play in terms of the impact on the Australian economy. Annualised Australian GDP is approximately \$A1.6trillion (RBA March 2017). Therefore depending on the year, the Australian winter crop represents around 1% of GDP. But let's examine this further in the light of current crop forecasts.

In the June crop report, the Australian Bureau of Resource Economics (ABARE) forecast the 2017 winter crop to be 33% lower in volume terms compared to the bumper yields that were recorded for the 2016 crop.

**Table 1: Winter crop production, Australia, 2007–08 to 2017–18**

Year	Unit	Australia
2007–08	kt	25,415
2008–09	kt	34,378
2009–10	kt	35,344
2010–11	kt	41,672
2011–12	kt	45,670
2012–13	kt	37,934
2013–14	kt	41,878
2014–15	kt	39,197
2015–16 s	kt	39,608
2016–17 s	kt	59,424
2017–18 f	kt	40,096
% change		
2016–17 to		–33
2017–18		

f ABARES forecast. s ABARES estimate.

Note: Includes barley, canola, chickpeas, faba beans, field peas, lentils, linseed, lupins, oats, safflower, triticale and wheat.

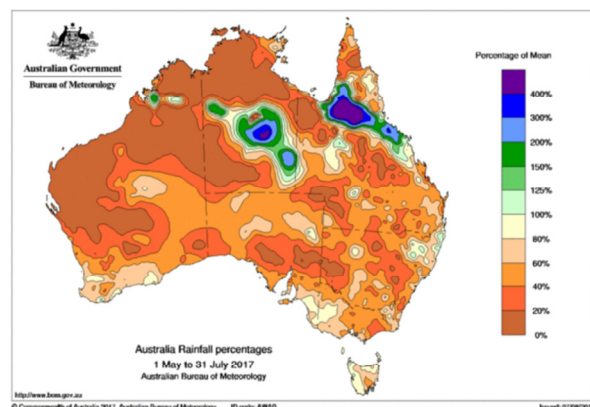
The current ABARE 2017 winter crop volume forecast is for 40million tonnes, which is approximately equal to the average volume over the 6 years prior to 2016. In other words, not as good as last year, but still an “average year”.

Other forecasters and commentators on crop performance are not so optimistic. I have read commentary that suggests 2017 could be a similar winter to 2006 with Australian production at around 40% of the long term median, or pessimistically some commentators are suggesting the outlook could be for a similar rainfall pattern to 1914, which would see Australian production at around 20% of the long term median.

The BOM state that July to September rainfall is likely to be below average over southwest WA and southeast Australia. Also July to September daytime temperatures are likely to be warmer than average for most of Australia, thus exacerbating the dry weather conditions.

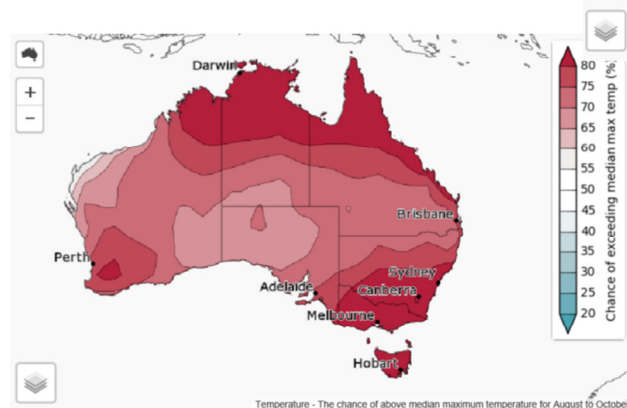
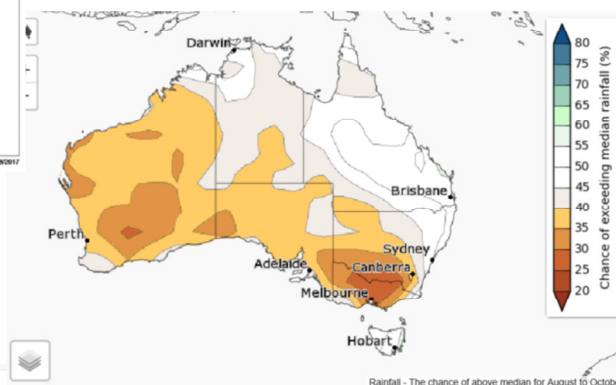
The outlook for August to October rainfall and temperature is shown in the following figures.

**Figure 1 Rainfall and temperature charts from BOM**



It has been a dry start to the winter cropping season, and it is not forecast to get much better.

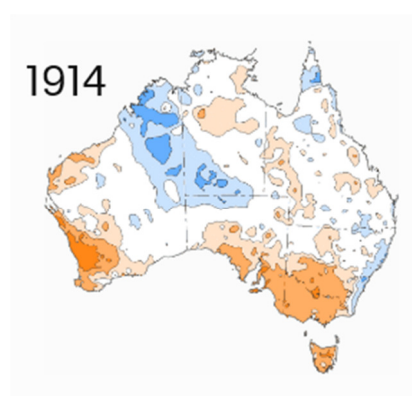
And to make it worse, it is going to be hotter than average.



So the outlook for the 2017 winter crop is bleak.

If a severe drought eventuated, such as a 1914 rainfall event, grain production would plummet to around 20% of the long term median.

**Figure 2 1914 rainfall**



Source: <http://www.abc.net.au/news/2014-02-26/100-years-of-drought/5282030>

I have converted these volume forecasts to an estimate of economic impact to illustrate the potential cost to farm enterprises and regional communities of a winter crop outcome with either the 2006 finish (60% reduction) or the 1914 rainfall (80% reduction). As the base case I have used ABS Agricultural Commodities data for 2014/15 in the following table.

**Table 2 Possible drought impacts 2017 winter crop**

ABS Data 2014/15 71210DO003_201415 Agricultural Commodities, Australia- 2014-15					
	\$	ha	tonnes	\$/t	t/ha
Broadacre crops - Cereal crops - Wheat for grain	7,124,099,984	12,383,673	23,742,560	300	1.92
Broadacre crops - Cereal crops - Oats for grain	299,699,788	854,417	1,198,006	250	1.40
Broadacre crops - Cereal crops - Barley for grain	2,416,708,799	4,078,041	8,646,321	280	2.12
Broadacre crops - Cereal crops - Triticale for grain	36,652,788	81,515	143,043	256	1.75
Broadacre crops - Cereal crops - All other cereals for grain or seed	49,826,497	196,524	167,151	298	0.85
Cereals	9,926,987,855	17,594,170	33,897,082	293	1.93
Broadacre crops - Non-cereal crops - Other pulses	906,159,019	1,706,561	1,786,887	507	1.05
Broadacre crops - Non-cereal crops - Oilseeds - Canola	1,782,360,118	2,896,951	3,540,021	503	1.22
	12,615,506,993	22,197,683	39,223,989	322	1.77
Potential Drought impact 2017					
	at	60%	(7,569,304,196)	Scenario 1: 2006 finish	
	at	80%	(10,092,405,594)	Scenario 2: 1914 rainfall	
Savings on reduced area and reduced harvest					
Saving on crop inputs	20% Based on NSW Dept Ag Gross Margins for dryland wheat				
Saving on harvest and transport	10% Based on NSW Dept Ag Gross Margins for dryland wheat				
Net reduced cash flow to cropping sector					
	at	60%	(5,298,512,937)		
	at	80%	(7,064,683,916)		
Net reduced contribution to rural communities					
Regional multiplier of 2.5376	Regional multiplier of 2.5376 (ABS Input-Output Tables 2001)				
	at	60%	(13,445,506,429)		
	at	80%	(17,927,341,905)		

On this basis a drought impact in 2017 with a 2006 season finish would cost farming enterprises in Australia approximately \$5.2bn and would cost regional communities approximately \$13.4bn when a regional multiplier of the reduced value of production is applied to the reduction in farm income. If the 1914 drought scenario became a reality, then the cost to farm enterprises is \$7bn and the cost to regional communities is approximately \$18bn. The cost to Australia of \$18bn represents the potential of a 1% reduction in GDP. The current GDP growth rate for the quarter ended March 2017 is 1.7%. If the non-farm sector continues at around the same growth rate, a 2017 winter crop failure would push the Australian GDP growth rate below 1%. This shows the impact of the volatility of the farm sector on the whole Australian economy.

These scenarios highlight the policy questions facing State and Commonwealth Governments, which is how we as an economy and a community address issues relating to climate risk and the flow on effects to jobs and the viability of regional communities. Drought subsidies and drought reconstruction programs are losing support across the electorate. Perhaps it is time to re-investigate underwriting commercial solutions for risk management in the form of multi-peril crop insurance (MPCI) programs that are common in North America, Canada and in parts of Europe. A properly funded MPCI program would mitigate a large proportion of the financial risk and convert this risk mitigation to an annual cost of operation, rather than ad-hoc compensation for a lack of risk mitigation which is what is occurring now.

### Options to incentivise farmers to participate in Multi-peril crop insurance

In April 2016, the Independent Pricing and Regulatory Tribunal (IPART) was asked by the NSW State Government to evaluate five measures to increase the uptake of multi-peril crop insurance. We also considered how a subsidy for multi-peril insurance should be designed if the Government decided to introduce one. The key findings are summarised below.

*We found that the main potential economic benefit of multi-peril crop insurance is increased productivity in good seasons, because it might encourage additional upfront investment in inputs such as fertiliser. This may occur because if low yields result from subsequent adverse conditions, the costs are underwritten by the insurance, improving farmers' confidence, and access to capital. Insurers may also provide incentives for insured farmers to adopt best practice through their products.*

On the question of incentives to increase uptake, the initial draft response concluded that NSW Government should subsidise premiums, however this was watered down in the final report as follows.

*We recommended that if a subsidy for multi-peril crop insurance was introduced, it should only be done so on a temporary basis. This is because we did not find evidence that the low uptake of multi-peril crop insurance was due to a market failure, and because we found that the expenditure on an effective subsidy for insurance would be greater than any savings in drought assistance.*

Mick Keogh the Executive Director of the Australian Farm Institute argues in an article in Grain Central published on 24<sup>th</sup> July, that market failure exists in relation to MPCl in Australia and that Governments should address this issue.

*The history of failed or discontinued efforts to create such a market (MPCl) over the past 20 years seems to provide pretty good evidence that such a failure exists.*

<http://www.farminstitute.org.au/ag-forum/policy-complacency-looks-likely-to-see-multi-peril-insurance-fail>

He draws attention to the US multi-peril crop insurance scheme that has about 60% of the premium cost subsidised by the Government. Mick Keogh suggests an alternative approach for Government could be to offer a 150% tax deduction on premiums and for State Governments to waive stamp duty on premiums. I have modelled a potential 150% tax deduction in terms of costs and benefits in the following table, under a national drought scenario as depicted in the earlier data, as well as modelling the impact of increased productivity (as identified by IPART) as well as improved forward selling of crops due to increased certainty.

**Table 3 Mitigation of Drought Impacts with 150% Tax Incentive**

<b>Drought Impact Assumptions</b>		<b>Notes</b>
Takeup	40%	1
Premium cost as % of crop revenue	4%	2
Premium Tax Deduction	150%	3
Insured proportion of crop value	70%	4
Average Tax Rate	30%	5
Premium		201,848,112 6
Additional Tax Deduction		100,924,056 7
Reduced Tax Revenue		30,277,217 8
<b>Insured Crop Payouts</b>		9
Scenario 1: 2006 finish	60%	2,119,405,175
Scenario 2: 1914 rainfall	80%	2,825,873,566
<b>Tax Revenue on Crop Payouts</b>		10
Scenario 1: 2006 finish		635,821,552
Scenario 2: 1914 rainfall		847,762,070
<b>Net Government Tax Receipts</b>		11
Scenario 1: 2006 finish		605,544,336
Scenario 2: 1914 rainfall		817,484,853
<b>Multiple of Incentive</b>		13
Scenario 1: 2006 finish		20.00
Scenario 2: 1914 rainfall		27.00

**Notes:**

1. Estimate of long term take up of MPCl policies in Australian cereal and pulse farmers. Note this does not include summer crops or sugar cane, two other areas that would be logical future targets for MPCl.
2. Estimate of premium cost relative to crop income.
3. Assumed Government policy of 150% tax deduction for MPCl premiums.
4. Estimate of the % of crop revenue insured per policy.
5. Assumed average tax rate for Australian farm enterprises.
6. Total premiums for winter cereals and pulses based on take up and premium cost and ABS 2014/15 Revenues as per Table 2.
7. Additional tax deduction is premium cost times 50% based on a policy to allow 150% tax deduction compared to the base case of 100% tax deduction for an MPCl policy.
8. Reduced tax revenue equals additional tax deduction times average tax rate.
9. Insured crop payouts in drought scenarios of 60% and 80% winter crop failures times take up (40%) times insured proportion of crop value (70%).
10. Tax Revenue on crop payouts is additional tax revenue in a drought year when the alternative scenario is 60% or 80% crop failure and commensurate reduced tax revenue.
11. Net Government Receipts equals tax revenue on crop payouts (Note 10) less reduced tax revenue (Note 8).
12. Multiple on government 150% tax deduction incentive in a national drought year ranges from 20 to 27 times.

In the above national winter crop drought scenarios, the risk to Government tax revenues is mitigated through commercial MPCl policies. The incentive provided by the Government in the form of a 150% tax deduction brings benefits of between 20 and 27 times in terms of increased tax revenues, compared to the tax revenues that would have been received in a drought scenario.

The following tables examine the cost and benefit to Governments in relation to a 150% tax deduction and increased productivity and improved in-crop marketing due to increased certainty.



**Table 4 Costs and benefits of 150% Tax Incentive for Farm Income Protection**

Increased Production and Marketing			Notes
<b>Assumptions</b>			
Takeup	40%		1
Premium cost as % of crop revenue	4%		2
Premium Tax Deduction	150%		3
Average Tax Rate	30%		4
Premium		201,848,112	5
Tax Deduction		100,924,056	6
Reduced Tax Revenue		30,277,217	7
<b>Increased Farm Revenue</b>			
Increased Yield	15%	756,930,420	8
Increased Price	10%	50,462,028	9
Total Increase		807,392,448	
<b>Tax Revenue on Increased Revenue</b>			10
Increased Tax Revenue		242,217,734	
<b>Net Government Position</b>			11
Net Tax Receipts		211,940,517	
<b>Multiple of Incentive</b>			7.00 12

**Notes:**

1. Estimate of long term take up of MPCl policies in Australian cereal and pulse farmers. Note this does not include summer crops or sugar cane, two other areas that would be logical future targets for MPCl.
2. Estimate of premium cost relative to crop income.
3. Assumed Government policy of 150% tax deduction for MPCl premiums.
4. Assumed average tax rate for Australian farm enterprises.
5. Total premiums for winter cereals and pulses based on take up and premium cost and ABS 2014/15 Revenues as per Table 2.
6. Additional tax deduction is premium cost times 50% based on a policy to allow 150% tax deduction compared to the base case of 100% tax deduction for an MPCl policy.
7. Reduced tax revenue equals additional tax deduction times average tax rate.
8. Increased yield due to improved agronomy and better matched farm inputs with increased certainty of revenue estimated at 15% potential benefit.
9. Increased crop price based on improved ability to forward sell crops during the crop production year due to increased certainty in relation to crop revenues.
10. Tax Revenue on increased crop revenue at the average tax rate.
11. Net Government Receipts equals tax revenue on crop payouts (Note 10) less reduced tax revenue (Note 7).
12. Multiple on government 150% tax deduction incentive is calculated at 7 times.

In these examples which include drought scenarios as well as the positive impacts on productivity (as identified by IPART) and improved marketing, there is a significant net benefit to the Government when comparing the tax revenues foregone from a 150% tax incentive on MPCl premiums and the benefits from either mitigating farm revenues in the drought scenario, or improving revenues when looking at productivity and pricing benefits.

For the Commonwealth Government there is NIL outlay, because the 150% tax incentive is calculated in the same tax return as the increased tax revenue. In other words, ***“the money never leaves the till”***.

Given the variability of revenues experienced at the farm scale, local community scale as well as at the Government tax revenue scale, there appears to be significant benefit in finding the right incentive mix to improve take up of Farm Income Protection and address market failure in this instance.



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