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Thank you for the opportunity to provide comment to the **Climate Change in Western Australia: Issues Paper 2019**

Farmers for Climate Action is a movement of farmers, graziers and agricultural industry leaders, focused on advancing climate solutions. Our rapidly growing network of Australian farmers and industry leaders, drawn from diverse agricultural industries and all sides of politics, is united by a common goal – to ensure that farmers, who are on the frontline of climate change, are part of the solution.

### Key Recommendations

In recognising the above, Farmers for Climate Action proposes the below key recommendations:

1. That the Western Australian Government commission robust independent modelling to fully understand the risks and opportunities facing Western Australian agriculture as a result of a changing climate.
2. That the Western Australian Government acknowledge the increased risks facing Western Australia in the event of global failure to achieve a 1.5 degree warming target and implement appropriate economy wide policies in both mitigation and adaptation.
3. That the Western Australian Government support the expansion of climate mitigation and carbon opportunities, including carbon farming and progress towards carbon neutrality as proposed by AgZero2030.
4. That the Western Australian Government support the urgent adoption of a National Strategy on Climate Change and Agriculture.
5. That the Western Australian Government acknowledge the findings of the Intergovernmental Panel on Climate Change for near-term reduction in natural gas use of 15% by 2030 and 43% by 2050 in order to meet the temperature goals established under the Paris Agreement, and expedite the transition to a clean energy powered economy.

Farmers for Climate Action is a proud advocate for locally led climate solutions. We subsequently draw to the attention of the inquiry; the comprehensive submission made by the AgZero2030 initiative and offer our full support for recommendations contained therein.

### Background

Agriculture has a long and proud history of being a foundational pillar of the Western Australian economy; creating employment in regional areas and fostering innovation across the food and fibre supply chains.

### Challenges

Farmers for Climate Action notes that Western Australian farmers are adaptive land managers with an

Climate impacts on Australian agricultural production include:

- Water-limited yield potential of wheat declined by 27% between 1990-2015
- Beef production in Qld and the NT could decline 19% by 2030 and 33% by 2050
- Up to 70% of wine-growing regions could be unsuitable for grapes by 2050
- Cotton yields could decrease 17% by 2050

(McRobert 2019)

extensive history of managing climate variability. However, as the Australian Farm Institute have recently highlighted, ‘if our current climate trajectory and supply chain processes remain unchanged, the agriculture sector’s continued ability to meaningfully contribute to the Australian economy and regional food security is jeopardised by climate disruptions’ (McRobert 2019).

Australia’s climate has warmed by just over 1°C since 1910, leading to an increase in the frequency of extreme heat events. (BOM & CSIRO 2018) In addition to increasing heat stress, April to October rainfall has decreased in the southwest of Australia, and May-July rainfall has seen the largest decrease of around 20 percent since 1970. This decrease, at agriculturally and hydrologically important times of the year, is linked with a trend towards higher mean sea level pressure in the region and a shift in large-scale weather patterns, i.e. more highs and fewer lows (BOM & CSIRO, 2018).

Agriculture is more vulnerable to climate impacts than other economic sectors, and projected productivity declines are likely to impact all subsectors. These threats include increased severity of tropical cyclones in the north, changing rainfall and weather patterns (including significant reductions in annual run-off in the South West – depicted opposite), changing biosecurity risks, and the increased likelihood of drought and heatwave conditions through vast areas of the state.

Using the GTEM and Ausregion modelling methods, Gunasekera et al., estimated that climate change impacts would cause Australian gross domestic product (GDP) to decline by 5–11% in 2050, compared to a business-as-usual (BAU) GDP scenario without climate change (2007).

It is noted that the impacts of current and future climate change are, and will continue to be, spatially and temporally diverse across Western Australia. However, climate change and associated extreme events are already, and will continue to remove a slice from our productivity improvement activities. In other words, the environmental and socio-economic challenges associated with climate change demand that many resources that could be used to grow productivity are absorbed in efforts to simply maintain productivity. While farms have been improving resource use efficiency and technology, these

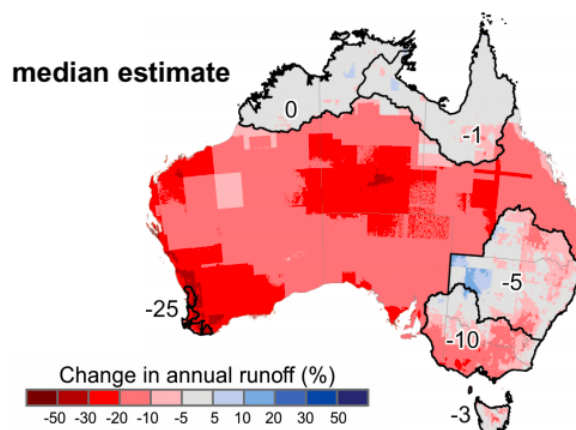


Figure 1IPCC, 2014: *Climate Change 2014: Fifth Assessment Report of the Intergovernmental Panel on Climate Change*

gains have been offset by deteriorating conditions. The net result has been ‘stagnant productivity’ (Hughes 2018). Put simply, farmers are working harder simply to stand still.

Looking ahead, climate change represents a serious and present threat to the Western Australian agricultural sector’s continued viability, which risks impacting our long-term food security, and sustainability of regional communities.

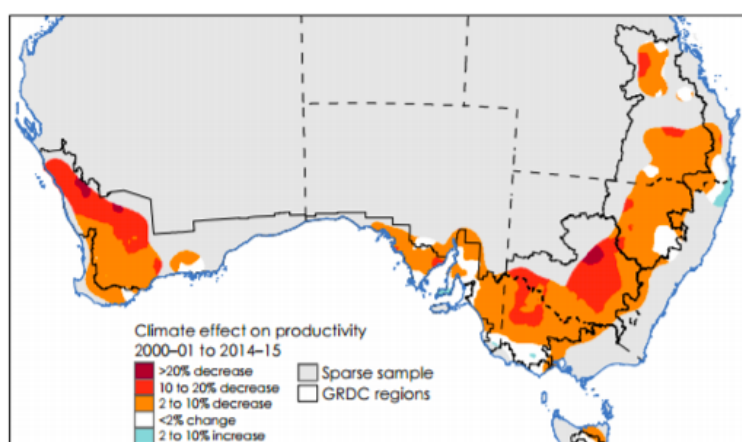


Figure 2Hughes, N. 2017. “Australian farmers are adapting to climate change.” *The Conversation*, May 23.

## Closing the emissions gap

Farmers for Climate Action draws the attention of the inquiry to the significant disparity between current global emissions trajectory and the level of action required to adhere with a 1.5 or 2 degree warming limit by 2100. With productivity impacts already being experienced by Western Australian agriculture and rural communities as a result of 1 degree warming, it is evident that a global average temperature increase would be severely disadvantageous. Therefore, Farmers for Climate Action calls upon the Western Australian Government to implement robust evidence based economy wide policies to reduce Western Australia's emissions; and proactively engage with other sub-national and national jurisdictions to implement similar levels of ambition. Farmers for Climate Action strongly urges the Western Australian Government support rural and regional WA through the agricultural sector by ensuring that its views and needs are taken into account when planning WA's climate policy, and that the climate solutions you support maximise benefits and minimise costs to rural communities.

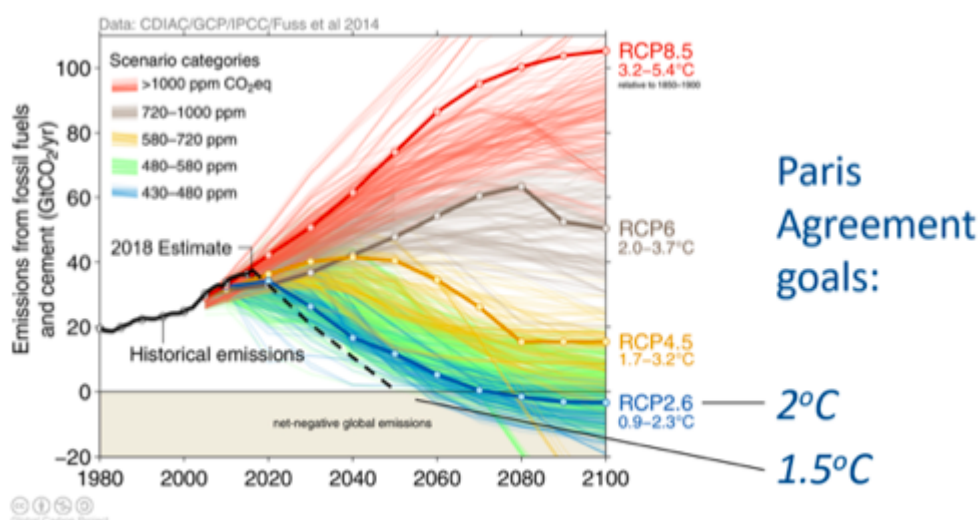


Figure 3 IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change.

## Summary

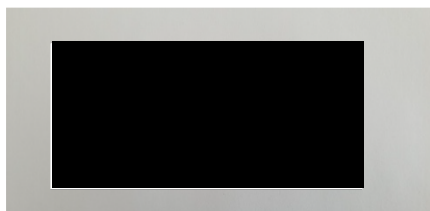
Thank you for the opportunity to make comment on the **Climate Change in Western Australia: Issues Paper 2019**. Farmers for Climate Action firmly believe in the urgent need to maintain a sustainable and vibrant agricultural sector, recognizing that the impacts of a changing climate must be acknowledged, and climate smart solutions implemented.

**In order to support this position, please find case study 1 and 2 at the conclusion of this submission.**

Western Australia is the second largest sub-national jurisdiction in the world. Despite significant spatial and climatic diversity, Western Australia as a state is both extraordinarily vulnerable to the impacts of climate change and uniquely poised to be one of the primary global beneficiaries of the global transition to clean energy and carbon sequestration. With world-beating renewable resources, Western Australia could achieve deep emissions reductions in line with the goals in the Paris Agreement and simultaneously achieve revenue diversification across regional areas. The window for seizing these opportunities is rapidly vanishing and we strongly urge the immediate implementation of the recommendations contained within the report.

Please do not hesitate to contact me for further information regarding any of the matters raised.

Kind Regards



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#### **CASE STUDY 1 – MILK PRODUCTION**

Increases in environmental temperature will suppress a cow's appetite. A noticeable difference in cows experiencing heat stress is a reduction in dry matter intake. Dry matter intake drops by 10-20% short term or long term depending on the length and duration of heat stress. The effort involved with keeping cool can result in 20-30% more maintenance energy needed to compensate. This can then lead to the following outcomes:

- Milk production can drop by 10-25% during heat stress, 40% in extremes
- Milk composition is affected with high to severe heat stress, with a decline in total protein
- Increased risk of udder infection, which, if occurs, results in increased somatic cell counts and sediments in milk

(Dairy Australia 2018)

## **CASE STUDY: Limits to Adaptation: Simon Wallwork, Corrigin, Western Australia**

### **The Farmer:**

Corrigin farmer Simon Wallwork has already experienced the impacts of climate change first hand, with a 15% reduction in winter rainfall creating a drier growing season and more severe/late frost events.

Simon has moved proactively to adopt the below climate smart agriculture strategies by:

- Predominantly growing barley as a frost risk management strategy.
- Spreading the frost risk by using a wide sowing window, starting early and spread sowing over two months, using dry seeding to manage difficult starts.
- Managing non-wetting soils by inverting it with mouldboard ploughing. That is a strategy to improve the productivity of soils by increasing the moisture availability to crops particularly with drier season.
- Utilising frost insurance. Last year Simon used frost insurance (AWB multi-peril crop insurance) and had a claim which covered his premiums for the year.
- Diversifying the farm business with the introduction of livestock.
- Burning stubbles. In the past he retained his stubbles, but there is now good evidence you can reduce frost and enhance weed control. Simon acknowledge that burning stubble is a factor in agriculture's emissions profile, but anything he can do to reduce frost risk is important in the sustainability of his business.
- Using chemical fallow. This allows Simon to reserve moisture from one season to the next.
- Off-farm income. Simon also carries out some agronomy work which gives him a more stable income when times are tough on-farm

"On-farm adaptation to climate change is critical - but I know that we can only adapt so far. The industry needs to get on the front foot in terms of influencing policy for West Australian agriculture and agriculture at a national level. We're adapting as we go, but we can't keep doing it alone." Simon Wallwork

### **The Industry:**

Looking forward, median wheat yields modelled for South West Australia projected declines between **26% and 38%**, under a 'most-likely' case for a low-medium emissions trajectory by 2090, and **between 41% and 49%**, under a 'most-likely' case for a high emissions trajectory (Taylor 2018). This will have a significant impact on Western Australian family farms with challenges likely to be most extreme in the marginal areas of Western Australia's wheatbelt (WANTFA 2014).

## Works Cited

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