SUBMISSION NO: 7

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Submission to the New Inquiry: Australian Farmers & Climate Change

We are farmers from the SA Mallee, with a family history of farming on Eyre Peninsula (Mike). We have both worked in agricultural research, and Kath's background is a successful 30-year career in cereal breeding.

The government needs to ask itself:

"How important is Australia's food production capacity?", "How secure a position should food producers have?", "How important are food producers to the government?"

If the answer is, "Not very much", then continue the current policies, which for the most part are causing Australia's agricultural and food production industries to diminish and decay, as they do not provide sufficient support for the hard life of farming in Australia.

We believe that the success of farmers producing food is central to the health, security and economic well being of Australia. We believe that the farming sector will become even more valuable as the current and future predicted effects of climate change impact on the world.

By impacts, we (and the inquiry also?), are expecting more erratic climatic events such as repeated and more severe droughts, changes in intensity of rainfall and the time that it falls, increases in wind velocity and frequency of high wind events, storms, uncontrollable bushfires, elevated average ambient temperature, increased evaporation, raise in sea-level, etc. And of course there will be pressures on Australia from other countries, as the rest of the world suffers climate change effects also.

Farmers are generally very hard working, enterprising and adaptable people, who adopt relevant new technologies where they can afford it. As an example, over the past 50 years, farmers have reduced their tillage hugely, to enable good productivity from soils receiving lower rainfall than could be cultivated by older, high tillage, methods. Burning of stubble has virtually gone, to be replaced by stubble incorporation, reducing pollution and returning organic matter in the soil. Family farmers in particular are committed to maintaining their farming land in good condition for the long term, and they generally try to look after the environment for the benefit of future generations. But farming is no longer an attractive career, as it has mostly become a burdensome, non-financially rewarding activity. It is now common that family members are encouraged to leave farms to have a chance at a money earning career, and easier lifestyle.

We need full time, professional , career farmers, and they need to ' be able to live'. Able to buy food, get health care, have their children educated, have a holiday from time to time, and have access to affordable water, power, communications and transport. Career farmers need income security. If farmers are in a reasonable financial position, it is amazing how well they can adapt to the impacts of climate change and produce well without further help.

The government needs to enable farming to become a sufficiently financially rewarding activity. Farmers can still produce a lot in a variable climate, but their production needs to be rewarded, particularly in consideration of their ever increasing input costs. Some food production may need to be subsidised and/or a minimum price guaranteed, e.g. $350/t for APW wheat, and the price of other cereals would then fall into place.

Did anyone read or act on the Ralph Report? I understand that the majority of farmers wanted to retain single desk marketing for wheat, as it provided some stability, guaranteed payment and buyer of last resort, needed in years when unseasonal harvest rain, or drought, means that larger than normal quantities of the lower grade quality grain are produced. At the "Ralph review meeting I attended, only one farmer, who was working for a grain company, spoke up for deregulation of wheat marketing. Having lost one stabilising mechanism, farmers now need government support even more.

With climate change, we expect that the years of high productivity will become less frequent. Farmers need to be well compensated for their production in the good years so that they can put income aside for poorer production years. In our most recent high production year (2005), prices for cereals were so low that it was not possible to put any money away, or purchase new items desired to improve the business operation. Given the cost of harvesting and marketing, in good production times it seems more lucrative for the farmer to simply dump the crop product on the ground and I understand that vegetable and fruit growers have a similar problem. This needs to be addressed.

Farmers are in a good position to do environmental work for the benefit of the general population. Payment for this would contribute to a farmers viability despite variable seasons. For example, pest control: foxes, rabbits, cats, goats and other ferals. Various weeds (e.g.boxthorns), both on and off properties. Fencing off scrub and watercourses. Sowing sandhills to trees to reduce erosion and increase biodiversity. Looking after existing trees. All this costs money and time, and as farmers get poorer, less of these activities are possible. So help keep farmers viable by paying for environmental work.

Other on farm activities, such as hosting wind and solar electricity farms, should be supported.

Governments need to enact policies to encourage more locally-based farming support industries. Locally based manufacturing businesses, e.g. for farming machinery, can more quickly and appropriately respond to the needs climate change imposes, than having to rely on sourcing all our agricultural machinery needs from overseas. Local business can maintain and quickly adapt their machinery for fighting bushfires, ameliorating flooding from cyclones etc, as when needed when preparing for a war. Farmers and local manufacturers need to be helped to remain viable. Incentives need to be given to stay rather than allow companies to move off shore to find cheap labour. Governments talk about wanting to

improve the skills base, and support training courses and apprenticeships to train tradespeople. Certainly we need this, but training courses are little use without a career path to follow. We need locally based manufacturing industries. If people have skills, education, the backing of local industries, and enough money for basic living, it is amazing how people will adapt themselves to events and new situations.

Tax incentives? It is hard to think of useful tax incentives for farmers, when their taxable income is nil. However, an investment allowance, whereby a greater amount of a purchased item is immediately tax deductable. The uptake of new, supposedly more environmentally friendly technologies by farmers would be supported by a permanent return of the investment allowance.

Farmers need good access to research and extension services by Department of Primary industries officers in their local region to assist them to adapt to the impacts of climate change. Internet-based services and media, or fee-for service to talk to a field officer is of little help. In recent years we have witnessed a running down of the Department of Primary Industries research and extension offices, particularly those in the lower rainfall/shorter season areas. These are in fact the areas from which the research outcomes are most likely to teach us how to prosper in the more difficult climatic times ahead. Research stations in such areas should be boosted rather than closed down. We need them more than ever before. South Australia's Eyre Peninsula and the Victorian Mallee are two examples. Support for the Mallee Research Station at Walpeup, Victoria and Minnipa, Eyre Peninsula, should be increased and rewarding job positions created and looked after, for those special and talented, locally –based people who have made such research stations so successful in the past. Of course few people would want to take up a position if it is made too onerous, restrictive, unpleasant and insecure.

Continued rural research supported by rural research funds is very important in the quest to assist farmers to adapt to climate change. Many talented and capable researchers have been trained locally, or have moved to Australia from overseas, and with the support of taxpayer and farmer-raised funds (via government and rural research bodies), many world renowned discoveries and developments have helped Australian farmers to continue to improve and adapt. But the way the research is now run, needs to change. Agricultural research needs to become an attractive career once more.

The major part of rural research needs to be publicly funded and largely independent of vested interest. Most rural research does not and should not need to make money in the short term. Most rural research work is not immediately commercially viable, but brings in a big return for the whole economy in the long term. In recent years, an increasing amount of research has been directed at short term money-making for commercial interest, and research outcomes have become more costly to the farmer. The privatisation of cereal breeding, for example, in the interests of saving government money, so far has had the result of increasing the cost of growing new, possibly less reliable, cereal varieties, with onerous paperwork, ever increasing end point royalties and legal restrictions. In too many cases, experienced and productive research staff have been passed over and funds granted on the basis of friendships and business models rather than research capability. We need fully public agricultural research and more secure job tenure. We need an attractive career path for talented scientific brains, from student through to retirement. Currently the career path is so poor that science students may not

be able to progress beyond one or two postdoctoral grants of a few years each, and in recent years the path for agricultural researchers has been so poor, that I have witnessed a significant number of elite scientists and extension staff, during their most productive years, choose, or be forced, to stop their scientific career and retrain for a new and completely different career (e.g. law, pharmacy), or go to work in another area of interest, e.g. as a tennis coach, real estate agent or café owner. Agricultural research seems to have become a treadmill of grant applications to secure a position for a year or two, year after year. Many scientists have felt intimidated and unreasonably treated by the funding bodies, with the security of their position being constantly under threat. Successful projects are likely to be suddenly cut, and replaced by a completely new set of research priorities. Research groups have been encouraged to undermine each other in order to secure funding, rather than working cooperatively together across the whole country. Contrary to what some people might think, such insecurity tends to reduce the success of research outcomes. We need local, publicly based funding, supported in way that it boosts up our Universities and education sector.

Good research projects to help farmers adapt to climate change:

Fertiliser: Australia needs to reduce its reliance on imported chemical fertilizer. Currently the supply is insecure and with wild price fluctuations. We need to reduce the wastes from our society, and obtain cheaper fertiliser, locally. Ideally we should work towards locally produced fertiliser available at council depots, where small processing plants are located and to which farmers, citizens and businesses can deliver suitable waste materials. These can then be processed into biological fertilizers, which may be better for our soils and plants anyway. Biochar and compost are two examples.

Projects around the processing of waste materials to produce fertiliser. What materials can be used? How is the fertiliser made? What is the nutritional value? and what does it do to plant and soil? How to use the new fertiisers?

Water: projects on water recycling, flood and storm water harvesting, as well as harvesting water from the atmosphere for domestic and farm use.

Fuels and power generation: Diesel is our main current main farm fuel. The supply and cost is a worry. Projects into the development of alternative fuels such as biofuels for the internal combustion engine need to be encouraged. Look into what can be done with wind, solar and hydrogen for electricity. Look into increased use of LPG and LNG and try to increase the local production of fuels. Rural pursuits need secure power generation. We need less reliance on the grid and coal-fired power. In fact, for the health of the planet, coal mining and use around the world needs to be phased down. Encourage farm or household based solar power generation

Farmers are more likely to be adaptable to change and willing to have a go at new water and power possibilities than city people. Get farmers and rural communities involved in water, power and fertiliser projects. Help farmers to make an income by paying them to test various systems prior to considering their supply to cities.

Agronomy. Agronomy is the most effective way of improving and maintaining food crop production despite climate change. The soil is the foundation for crop growth, and through agronomy the soil's nutrition and water holding capacity can be improved to provide a buffer against climate change. Soil biology is the key issue, and we know very little about this. We need to know what micro-organisms we have in our soil, and what they do. What do chemicals and different fertilisers do to the biology ? Do different plant types host more benefical soil micro-organisms. From our farming experience, cereal rye in particular, and to a lesser extent, triticale, help build the soil's structure, productivity and health, and reduce soil's susceptibilty to erosion. A scientific project looking into this, including root structure, nutrient uptake, and interactions with soil biology would be very useful.

Cereal rye seems to have been forgotten when it comes to research support, but it is so hardy and valuable for soil improvement that it needs to be included in studies and breeding programs. Specifically, farmers need a rust resistant rye variety bred from the very hardy variety "Bevy". The Cobbitty rust laboratory (University of Sydney) have the capability, but would need specific funding to get on with this. Farmers in marginal areas have reported that the release of "Bevy" was the most useful GRDC supported product for them, enabling them to crop and make money from their sandhills, building up the soil so that it could support further cropping and even sheep grazing without soil erosion.

Breeding of pasture and legume species, which fix atmospheric nitrogen into organic nitrogenous fertiliser, suitable for grazing in dry environments, should be heavily supported. The sheep industry has run down in recent years, but sheep are very hardy animals and can be run in harsh environments where other agricultural production is not possible. So it is important to keep pasture work going. At this stage, vetch, *Vicia sativa* is one of the few legumes which shows some adaptation to the drier farming areas, with good forage production. Vetch seems our best chance so far for a hardy, productive, nitrogen fixing legume, and work into vetch breeding needs expansion.

The research stations in the more marginal areas need to have their support increased. Need to keep farming in marginal areas. This is low cost, low production farming, but is still productive.

Disease threats. Support disease testing laboratories and programs. We are expecting an increased threat from plant and animal diseases and pests. Genetically resistant plants are preferred over extensive chemical use, which can harm humans, the soil biology and off-target crops. Plant Disease Research laboratories such as the National Rust Laboratory at Cobbitty NSW and the SARDI Root Pathology Laboratory at Adelaide, SA, needs permanent, reasonable funding, rather than constantly being on the application for rural research funds roundabout. These laboratories need to be properly and securely funded so that they can test any breeding material from around the country, without having to charge a fee for service (although quotas should be applied to stop overloading the service), to identify resistant lines and genes, and therefore assist farmers to have a continued supply of affordable, resistant crop cultivars. Fee-for service testing tends to encourage breeding companies to drop screening for the diseases with the most expensive tests, even though these diseases are no less important.

Biosecurity and Quarantine will be needed even more, to try to prevent new diseases and pests entering Australia and spreading.

Weather predicting and collection of climatic data. Keep supporting the Bureau of Meteorology to collect as much data as possible, which may help us learn more about what influences the climate in Australia, and to relate these measurements to more reliable seasonal forecasts.

Storage, food preservation and processing. With climate change likely to provide more erratic and severe events, causing food shortages and (we hope) bumper cropping seasons. If overproduction can be stored, preserved or processed, the price to the farmer of their food product can be maintained with some stability. Local processing plants will maintain food quality and safe and reliable transport of food despite fluctuating and high temperatures is also important. Being a nutrient dense, dry product, grain can be stored and transported very efficiently. But continued work into improved grain storage, including pest control, so that storage for several years can take place, is desirable. In recent years, loss of grower control of grain handling sites which were formerly cooperatives, has seen some relaxing of maintenance and updating of receival sites, which is a worry for farmers expecting seasonal conditions in which these private company owned sites may fail. Can the government require that certain standards be adhered to?

Summary of main points.

Farmers who produce food are central to the health, security and economic well-being of Australia. If farmers are in a reasonable financial position, it is amazing how they will adapt to the impacts of climate change and produce well without further help. Farmers need to be sufficiently recompensed for producing food, and be assisted by stability in food pricing. When events cause food products to drop in price, making farming unviable, government needs to step in and enact policies that support an adequate financial long term return. Rural Research and Development can provide important solutions to the difficulties imposed on farmers and our society by climate change. But this research and development needs to be properly supported by public funds, for affordable and beneficial outcomes in the long term, rather than being left in the hands of private companies which tend to direct research outcomes for short term company gain. A number of research areas are listed, particularly relating to the grains industry, which is our area of expertise.

Yours faithfully,

Dr Kath Cooper and Mr Mike Elleway