

Tackling climate change on Eyre Peninsula

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Eyre Peninsula growers are being encouraged to take account of climate change when making management decisions and make sure they keep their options open.

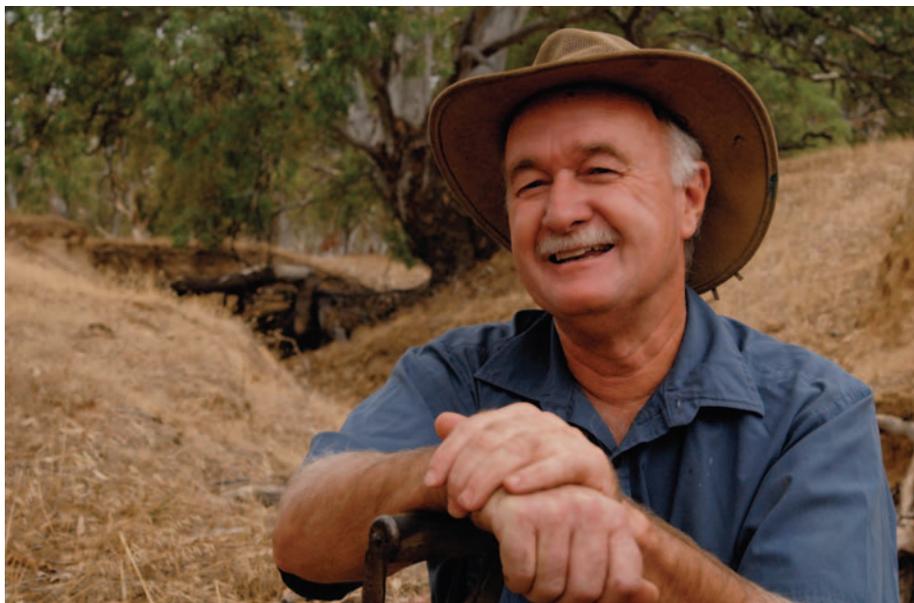
The region has been proactively planning for climate change for almost a decade and growers, other individuals and regional bodies can now refer to a locally developed Regional Climate Change Adaptation Plan when considering how to tackle climate change.

The plan, which sets out pathways and approaches to decision making around climate change on EP, has been developed by the Eyre Peninsula Integrated Climate Change Agreement committee (EPPICCA).

According to EPPICCA chair Brian Foster, the document is significant because it provides pathways for adaptation to climate change and encourages decision making that will keep options open for the future.

“The Plan is the product of a regional community engaged in practical thinking about how it can respond to the future impacts of climate change, considering how individual sector actions interact to deliver regional priorities,” Brian said.

“This is the first time an adaptation pathway principle regarding climate change has been applied. It’s a real change in methodology. For us, it’s not about the actual decisions; it’s about how we go



BRIAN FOSTER, CHAIR OF THE EYRE PENINSULA INTEGRATED CLIMATE CHANGE AGREEMENT COMMITTEE.

about finding answers to determine our decision making into the future.”

Brian has no doubt climate change will impact Eyre Peninsula and other regional areas by leading to warmer, and most likely, drier conditions on the land. He says science has indicated that rising sea levels will impact the coast and rising temperatures and acidity will occur in the Great Southern Ocean and Spencer Gulf.

“In responding to these changes, there will be ‘adaptation tipping points’, that is, some actions that will be viable to begin

with will later become inadequate.

“Agriculture will most likely experience a fall in cropping yields as temperatures rise and rainfall declines. The potential impacts of climate change on Australian agriculture include increased invasion of weeds, pests and diseases and changes in crop yields, pasture growth, animal health, carrying capacity and soil condition,” he said.

The aim of the Adaption Plan is to encourage thinking regarding long-term solutions in agriculture, some of which farmers are already applying.



YEARS OF NO-TILL FARMING HAS RESULTED IN IMPROVED SOIL CONDITIONS THAT HAVE ENABLED THE BALDOCKS TO IMPROVE THEIR SEEDING TIMELINESS.

“If a farmer is making a decision to put in a crop of canola in a particular year, it’s a short-term decision. The farmer makes the decision and it’s all done and dusted by harvest. In this space, it’s not necessary to dwell too much on climate change.

“However, there are bigger-picture decisions in the agricultural sphere that we need to start thinking about now to help adapt to climate change. While the need for action may be 10 or 20 years away, some of the decisions need to start being made now.”

Many farmers are already adapting to climate change through various farming methods and modern practices, Brian said.

“A prime example of where farmers are already adapting to climate change is the switch to no-till farming. In my opinion this has brought us an extra 30 years in the climate change space, because no-till farming methods conserve moisture, increase carbon in the soil and enable timely sowing.

“The new soil horizon program is another area where farmers have been ahead of the game. Using this method to deepen the soil’s seed bed is making up to half a metre of soil part of the seed bed. It allows the uptake of carbon and organic

matter and it means the moisture comes from a larger volume of soil. This is the next major step to adaption to climate change because of temperature change and the greater uncertainty around rainfall and rainfall distribution.”

Brian says climate change adaptation strategies for farmers include new crop varieties, introducing genetically modified crops and better land management practices.

“Genetically modified crops can be attractive because of the potential to develop new traits at a rate quicker than may be otherwise possible through traditional breeding programs. Despite interest, genetically modified crops are not currently permitted in South Australia under a State Government ban, which is understood to last until September 2019.

“Some other strategies may include increased diversification of cropping enterprises and spreading risk over larger geographic regions, soil types and climatic zones.”

The EP Regional Climate Change Adaptation Plan states that without successful adaptation actions, the general trend will be a decline in agricultural production levels at a regional scale, with

some farms possibly facing significant yield losses and unable to continue.

“Farmers need to take these issues on board and understand the context of where their industry is heading in this space. The science is very clear, climate change will take effect and we need to think about the decisions now.

“The Plan is a just a start, and will change and adapt over time. The role of EPPICA is to take some responsibility and to facilitate the process. We want to ensure decisions are made and voices are heard,” he said.

One step ahead

Eyre Peninsula growers Heather and Graeme Baldock have been implementing climate change strategies like those in the EP Adaptation Plan for a decade.

The Baldocks, who farm 5,400 hectares north-west of Kimba, were involved in the EPICCA workshops that formulated the Regional Climate Change Adaptation Plan. Heather has also been the presiding member of the Eyre Peninsula Natural Resources and Management Board for three years.

“As a farmer, I know that good natural resource management – taking care of the health of our soil, water and biodiversity and managing biosecurity issues – is essential to us continuing to be viable into the future,” Heather said.

“We have been involved in various community and agricultural organisations and understand the value these groups bring to our business and lifestyle. I like being involved in influencing decisions which have an impact on my local and regional community.

“The EPPICA Adaptation Plan workshops included participants with a very wide range of views on climate change but we came together with a view that any adaptation we made would improve the longevity of all sectors, regardless of climate change outcomes.

“The pathway for agriculture, put together through this project, is one we both certainly support. It promotes the strong need for ongoing research and development, and adoption, which has always existed in our industry.”

Heather and Graeme have seen an increase in average daily temperatures and a decrease in rainfall distribution in the past 10 years.



GRAEME AND HEATHER BALDOCK HAVE BEEN IMPLEMENTING CLIMATE CHANGE ADAPTATION STRATEGIES FOR A DECADE.

“We have experienced plenty of climate variability over our farming career, but over recent years we have recorded more frosts and warmer May temperatures.

“We have been using no-till farming methods for 18 years and are now sowing by the calendar, not the rainfall events. Each season over the past decade we have commenced dry sowing on the cleanest paddocks to adjust to shorter growing seasons and to manage time inputs.”

Farming on Upper Eyre Peninsula, where the average annual rainfall is about 300mm, can be variable. The Baldocks manage the low rainfall and rising temperatures by using no-till farming methods, soil modification and trying new crop varieties.

“Using no-till practices over a long period of time has resulted in improvements to soil health and better crop yields, which has allowed us to manage climate variables. The softer soils from no-till farming have enabled us to sow earlier and having healthier soils with more organic matter allows for better collection and storage of rainfall.

“We are now endeavouring to sow between the rows of the previous year’s stubble to provide young seedlings with a more favourable environment for establishment, including wind and evaporation protection.

“Currently we grow wheat, barley, canola, peas and occasionally lupins and oats.

“We regularly trial new crop varieties including those with improved water use efficiency and disease resistance to check their suitability for our program. We do the same with fungicide products.”

The Baldocks’ farm has a range of soil



HARVEST TIME ON THE BALDOCKS’ PROPERTY NORTH-WEST OF KIMBA.

types. Controlling weeds and applying trace elements are big parts of their operation.

“Our soils are mostly brown loam, with areas of red loam and grey calcareous soils, and one of our leased properties has a large area of light sand over clay,” Heather said.

“For four years, we’ve been applying trace elements, nitrogen and fungicide via a liquid distribution system on the seeder. We have also been trying to control weed seeds at harvest by windrowing crop residues for burning, as well as spraying herbicide as required.”

Involvement in trial work has helped Heather and Graeme explore options for their future.

“We have hosted various trials, including SANTFA, SPAA, University of Adelaide, Minnipa Ag Centre, and Buckleboo Farm

Improvement Group research, for many years on our property. We consider involvement in farming systems groups and farming advocacy organisations to be an important part of staying at the forefront of any advances that might benefit our business and help us continue to be viable in what has always been a challenging, low-rainfall environment,” she said.

“Any adaptations we undertake will support us through climate variability and the predicted climate change impacts for our area.”

As the Adaption Plan advocates, Heather has also considered possible long-term management options, such as genetically modified crop varieties.

“We would welcome access to GM crop varieties, particularly crops with resistance to frost, sub-soil constraints, higher temperatures and pests. We would also consider crops with improved water use efficiencies and varieties that would allow us to reduce our reliance on chemical weed control in our no-till system. These would not only improve our reliability and viability, but also be a big bonus for our environment and provide us with additional varieties to choose according to the needs of our farm,” she said.

“Graeme and I are third-generation farmers on this land. Our son and his wife came home to join us in 2013. We also have two daughters. We want to remain sustainable in the current and future climate, and to do so, we need to act now.

“We know the decisions we make today may have a huge impact on the next 20 years.”

EPRCCAP STRATEGIES

Strategies from the Eyre Peninsula Regional Climate Change Adaptation Plan include:

- New crop varieties from traditional breeding programs with traits better suited to changing local conditions and improved water use efficiency, salt tolerance, disease resilience and nutrient usage.
- Genetically modified crops that enable farmers to maintain productivity as local environmental conditions change.
- Soil protection through land management techniques such as wind breaks, cover crops and retaining stubble to reduce erosive forces.
- Soil modification of clay-on-sand soils to increase moisture and nutrient retention or deep spading to introduce organic matter at depth.
- Maintain high equity and greater capacity to weather the negative financial impacts of a more inclement climate.