

## The Australian 40 Years: The Land

Published in The Australian July 29, 2004 In 40 years Australian farming has been turned on its head. At the heart of the change is a more hard-headed appreciation of the wide brown land. Rural writer Åsa Wahlquist examines the lessons learned.

The year 1964, was for those on the land, lived near the end of our innocence, at the edge of our ignorance.

The Australian landscape was regarded with a European sensibility, largely lacking in curiosity, more interested in clearing the land to plant familiar crops, in altering the rivers to suit those plantings; more interested in making the deserts bloom than marvelling at the wonders those deserts held.

Land and water were there to be exploited, using farm practices imported from Europe with its deep fertile soils, and reliable rivers. Although problems were emerging in the sixties - salinity, soil erosion - from applying European practices to our thin fossil soils, and our highly variable water courses, governments still subsidised land clearing and irrigation water.

Indeed farmers were offered support in many forms, their returns buffered by guaranteed minimum prices, served by state owned monopolies. One of the greatest subsidies was the employment of Aboriginal stock workers, even those who supervised white workers, for little or no wages. Farmers were protected politically by the Country Party, whose leader Jack McEwen punched well above his weight, and green politics had yet to even be named.

The sixties, a conveniently wet decade, was also the great era of Australian dam building. There was no debate: water that flowed down the rivers was there to create wealth: water flowing unused to the sea was deemed wasted. The health of the natural environment, the river, its floodplains, its plants, fish and myriad micro-organisms animals had not entered the discussion.

The 1960s were still a period of isolation. Travelling the inland was arduous, and few visited what has become the heart of modern Australia tourism, Ayers Rock, later re-named Uluru. And even fewer visited our great inland sea, Lake Eyre.

Historian Michael Cathcart, of Melbourne University, says Australians today are caught between two irreconcilable ideas: (quote) "they still dream of a green and pleasant land, but they are learning to see beauty in the arid zone." (unquote)

He points out the great irony is that, for a nation so obsessed with water, the central feature of the nation is a great rock, Uluru.

But further south, in north east South Australia, Lake Eyre is enjoying an

extraordinary ascent in the popular imagination. In the sixties, it was known as the site where Donald Campbell broke the land world speed record on the dry lakebed.

The first European to see the lake, Edward Eyre, reported (quote) "with bitter feelings of disappointment I turned from the dry and cheerless scene around me". (unquote) What he did not know was that before him lay a lake that, when filled, is so large it is affected by the gravitational pull of the moon, and experiences tides. A place deeply, quintessentially Australian, perfectly adapted to the biggest of the booms and busts that dominate Australia's weather systems.

Lake Eyre has only filled with water twice since 1964, in 1974 and in 2000.

The Lake Eyre Basin is fed by the last wild, unregulated large rivers in the world. It is only in the past two decades that scientists have begun to study the Lake, indeed take seriously the study of all our rivers, their highly variable flows, and the astonishing adaptation of their plants and animals.

More recently, Lake Eyre has claimed a special place in the Australian psyche. When heavy rains, the first in years, fell in central Queensland in January 2004, the media, including The Australian, tracked the progress of the floods, down Coopers' Creek, travelling slowly through the intricate waterways, the braided channel country, asking the question all the way, (quote) 'will it make it to Lake Eyre?'. (unquote)

It did, and in the process those waters highlighted some oddities of the land: the arid zone rivers that locals describe as the best natural irrigation system in the world; and the creek, Cooper's Creek, that spread to become a river 60 kilometres wide.

The European notion of a river is a watercourse with discrete banks with a continuously flowing channel. But many Australian rivers oscillate between a string of waterholes, and land flooded as far as the eye can see.

When Lake Eyre floods, life bursts forth and breeds furiously. Brine shrimp, trilling frogs, spangled perch, Lake Eyre hardyheads, desert gobys, egrets, cranes, pelicans, banded stilts and terns all appear: the full Lake teems with life. And

it just as suddenly dies, the receding waters rimmed with the detritus of life that bloomed so briefly.

There is something else about Lake Eyre. Here, the salt that underlies the Australian landscape, that curses its soil and water ways, is triumphant. The lowest point in the country is weighed down by over 400 million tonnes of it.

And, to put the final seal on Lake Eyre as emblematic of Australia, it is also a barometer of the El Nino cycle, filling when its wet sister, La Nina, reigns.

From the viewpoint of 2004, farming in 1964 was a naive occupation, focussed on a handful of traditional products - wool, wheat, beef and dairy products - dependent on the mother country, ignorant of its impact on the land and waterways.

In 1964, the age of globalisation was dawning. Britain, Australia's major market, would soon join the European Community, and Australian farmers had to face first the impact of global markets, and then de-regulation.

Head of the Australian Bureau of Agriculture and Resource Economics, Dr Brian Fisher, says (quote) "competitiveness in a world market required greater efficiency which in turn spelled increased capital, larger landholdings, diversification, and deregulation as many of the bounties and the subsidies that had characterised the sector for so long were removed." (unquote)

Only New Zealand has borne the brunt of globalisation with less government protection. The result was that, before the century was out, Australian farmers, after considerable pain and restructure, proved themselves to be amongst the most efficient in the world. In 2001, when beef, wool, grain and sheepmeat prices hit the highest level in a generation, NSW Farmers' Association president, Mal Peters, readily acknowledged the reason was globalisation.

A catchcry of Australian farming has been diversify. Who, in 1964, could have forecast that two very small crops, cotton and winegrapes, would change the countryside, and grow to earn billions of dollars in export income by the turn of the century? It is no accident that both are largely irrigated.

The first irrigation schemes were heavily subsidised, set up with the aim of populating the inland, greening the desert, creating a society of yeomen farmers.

In the sixties, officers of NSW Water Resources persuaded farmers along the Gwydir River to buy 972 ML licences (one megalitre is the amount of water held in a typical Olympic sized swimming pool) for \$28. Keen to sell enough to justify the building of a new dam, and assuming not all licence holders would actually use them, they issued licences for 529,007 ML. But the storage built to supply it, Copeton Dam, only had an average inflow of 481,000 ML.

But irrigated crops took off. The licences were activated and it became a rare year there was enough water in Copeton Dam to fill them. Across the Murray-Darling Basin, too much water was being taken out of the rivers.

The turning point was the massive algal bloom, infecting 1,000 kilometres of the Darling River in the summer of 1991. Eminent water scientist, Peter Cullen, described it as a focussing event, (quote) "when the ideas of different people all coalesce and you have a chance to change in this country." (unquote)

The bloom made world headlines, but exposed the dearth of research here in Australia.

Under natural conditions, the mouth of the Murray experienced severe drought one year in 20. By 1994, so much water was being taken out for irrigation, low flows were occurring three years in every five. They looked likely to rise to three years in four until the Murray Darling Basin Ministerial Council capped extractions at 1994 levels.

Professor Cullen said the second focussing event was the 1999 salinity audit of the Murray-Darling Basin. (quote) "The one thing that everyone really understood was that we weren't going to be able to drink the water in Adelaide two days out of five (in 50 to 100 years time)," (unquote) he said. The third, he thinks, will be the ongoing 2002 drought and the debate over drought proofing.

(quote) "I have always felt that knowledge was better than ignorance," (unquote) Professor Cullen says, (quote) "and we should try knowledge in this country because ignorance hasn't got us very far." (unquote)

On average, 12,809GL (gigalitres or billion litres) are diverted in the basin. The National Farmers' Federation, under president, Peter Corish, lobbied hard for farmer water security. They won a victory in June 2004, when the Murray-Darling State premiers and the Prime Minister signed the National Water Initiative. It included returning 500GL to the Murray River. Many environmentalists want at least another 1000GL.

But water, these days, is a very expensive commodity.

Under the 1994 Council of Australian Governments water reforms, which for the first time stated that maintaining, or restoring, the health of rivers was an integral part of water management, water licences were separated from land, and traded freely.

The value of water licences skyrocketed, no where more so on the Gwydir, where those \$28 licences are now worth \$2.75 million.

Water is now worth far more than the land in many irrigation properties. Water is the key to profitability: irrigation farming, which uses just one per cent of farm land, produces well over half of Australian agriculture's profits.

One of the aims of the water market is to move water from low value, often environmentally damaging uses, to higher-value production.

Although rice and cotton growing come in for criticism, pasture is the real problem irrigated crop, according to Wayne Meyer, the director of the Co-operative Research Centre for Irrigation Futures. He points out more water is used on pasture, than on cotton and rice combined.

But the low returns on pasture, where each megalitre of water returns just

\$94, compared with \$1295 for vegetables, and \$1276 for fruit are driving the change.

(quote) "Horticulture, viticulture, this is the really positive stuff. They can afford not only to capitalise and put in irrigation systems with a level of control and management, but also they are now in a position to influence not only quantity but quality of what we produce," (unquote) Professor Meyer says.

The new uses also bring more jobs: a Victorian study found each 1,000 ML used in grazing produces less than one job: used in dairying, it generates 15 jobs, but used in horticulture it generates 30 on-farm, processing and support jobs. This tells the story of why the irrigation towns in the bush are flourishing, while the sheep/wheat belt towns have been dying.

Professor Meyer says Australia, the driest inhabited continent, actually has the highest per capita water use in the world. He calls it our great paradox. (quote) "Our per capita water use, if you include irrigation, is very high, about 900litres per person per day, compared to North America which is about 600litres." (unquote)

Science is rapidly improving water use. Grape vines that used to receive between 8 and 10ML/hectare now thrive on 5 or 6ML. Rice production, per unit water, has doubled over the past 20 years.

Three quarters of the water used in Australia goes to irrigated agriculture. But, according to the recent National Land and Water Resources Audit, only 77 per cent of the water diverted reaches the customer.

Piping open channels has led to massive water savings. Before Wimmera Mallee Water piped the Northern Mallee water supply, they lost 45,000ML of every 50,000ML released into the channels.

Australia's southern rivers have low volume, highly variable flows. The annual average flow, out the mouth of the Murray, is less than one's days flow from the Amazon.

A standard measure of river variability puts the rivers of Europe at between three and ten. Most Australian rivers are rated between 300 and 1000, while the Darling River scores a phenomenally variable 11,000. And this is what the Australian biota, its plant, animal and streamlife has adapted to.

Terry Hillman, the former Director of the Murray Darling Freshwater Research Centre, says the real work along the Murray River takes place not in the main river, but in the billabongs that curve alongside it. The billabongs, home to up to 1,000 times more species than the river, process carbon and organic matter at a rate comparable with a sewage treatment work. The floods that occurred naturally every couple of years swept the rich brew of nutrients from the billabongs, into the rivers, recharging them.

But, as Dr Hillman points, out, the requirements of irrigation have driven the river into a predictable state. Water management has reduced the size, frequency and duration of floods. It has reversed the seasonality of flows, and dramatically reduced the volume, not only modifying the flow pattern but also the floodplain.

(quote) "We haven't as a nation put very much effort into our big lowland rivers, like the Murray. What we need to do is develop a model so that our concept of a river is one that fits reality instead of dreamtime or the top end of the Thames or something," (unquote) Dr Hillman says.

In 1989, in a move that would change the face of farming, the National Farmers' Federation, lead by Rick Farley, joined with the Australian Conservation Foundation, lead by Philip Toyne, to form Landcare.

The traditional enemies came together in the face of a larger foe: land degradation.

The challenges included soil erosion, acidity and soil decline, but the problem that grabbed the headlines was salinity.

The native vegetation that used all the rain that fell was cleared, or replaced by annual crops that did not. The unused rain percolated down through the soil, raising the water table, bringing dissolved salts to the surface that then damaged crops, pastures and soil and polluted water sources.

The National Land and Water Resources Audit in 2002 estimated dryland salinity adversely affected 3.3 million hectares, with 5.7 million at risk.

It is, as Professor Cullen points out, another great paradox of Australian farming, that although Australia is the driest inhabited continent, salinity is caused by too much water.

Today 40 per cent of farmers belong to Landcare, restoring landscapes, protecting remnant vegetation and creating wildlife corridors. Farmers are learning to live with salt-affected land, to grow productive pastures by planting saltbush and regenerating native grasslands.

Throughout the decades farmers have managed through the inevitable wet and dry times.

Drought, it could be argued, is a political term in Australia, invariably linked to calls for government support. But the rules changed dramatically in 1989, when drought was removed from the list of natural disasters, and declared an inherent risk of farming.

The man who drove the change, Federal Minister for Finance - and former wheat farmer - Senator Peter Walsh, argued drought support encouraged overstocking and sloppy management. Those farmers who had set aside drought reserves, often resented the support that went only to their improvident neighbours.

But faced with drought on top of poor commodity prices in 1994, and the worst drought on record, in 2002, the Federal Government dug deep for farmers, paying out \$590 million to assist farmers in 1994, and committing \$742 million in 2002/03.

The drought of 2002/03 was the worst in a century. The 11 month period March 2002 to January 2003, was Australia's second driest year since 1890 (only 1946/7 was drier). But the high temperatures and record evaporation during that period pushed the drought into a class of its own, as dams dried, bushfires raged, and unprecedented water restrictions were put in place.

The nation was stunned, in January 2003, when a firestorm tore into Canberra, destroying over 500 houses, causing four deaths. It ranked with the other big El Nino fires of the past 40 years: Black Tuesday in 1967 when 1,300 houses were destroyed in Tasmania, and 62 lives lost; Ash Wednesday in 1983, when 76 people died and 2,463 houses were destroyed in South Australia and Victoria, and the 1994 east coast fires when three lives and 205 houses were lost.

But bushfires, as fire scientist Phil Cheney, reminds us, are an intrinsic part of Australian life. He points out charcoal lies alongside eucalypts in the fossil record.

The eucalypts, that dominate Australia's vegetation, have been closely associated with fire ever since. They drop a huge quantity of leaf litter: in less than five years an open eucalypt forest can accumulate enough litter to fuel an uncontrollable conflagration. Some like stringybarks, have long tongues of bark that carry fire to leaves with high levels of volatile compounds. Ignited bark can fly ahead, creating spot fires. And after fire eucalypts shoot profusely from buds that have been protected by the thick bark. Heat prompts the release of seeds that germinate in the new ash bed.

Cheney believes Australians do not understand fire. (quote) "Maybe it is our European heritage, but the general population does not see fire as a natural ecological process, and it is," (unquote) he says. (quote) "You can't replace it with anything else." (unquote)

In forty years the number of farmers has halved. But forget that furphy about corporates buying the farm. In fact, it has been the opposite, with some big corporates like Axa (formerly National Mutual) and AMP (Stanbroke) selling out, and the properties largely purchased by family businesses. While Kidman Holdings is the largest landholder, individual farmers like South Australian, Hugh MacLachlan, and Queenslanders Don and Bob McDonald, and David Brooks, make into the top ten landholders.

With the advent of Land Rights in 1976, and the 1992 Mabo judgement, which rejected the old legal fiction of terra nullius, the belief that before English settlement the land belonged to no-one, land ownership changed.

The Indigenous Land Corporation, set up to acquire land for those unable to assert native title rights, had by 2004 had purchased over 5 million hectares.

Many of the children and grandchildren of the Aboriginal stock workers, cast off their lands after the 1968 equal pay legislation, today work their own land.

The face of farming today is often also female.

Farming in Australia has been likened to a 216 year experiment.

Over the past forty years there has been an explosion of scientific research, a revolution in understanding, in the face of a mounting environmental toll. The days of innocence are over, and it is time ignorance was gone.

The best farmers today see themselves as natural resource managers. They understand that only by working with the land, by conserving their native vegetation, by protecting the waterways, by learning to living with drought, that they will secure their future, farming this wide brown land.

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