

Outlook 2008

Intro.

Over the past couple of decades there has been greater competition for our dwindling water resources. This led to the introduction of the MDB Cap on extractions and has seen the development of water trading markets and the resultant increase in the capital cost of water. The competition for water has come from irrigators, urban growth, industry and the environment. This extra competition comes at a time as we try and restore the balance between consumptive use and environmental use in Rivers like the Snowy and the Murray. On top of this we need to overlay the impacts of climate change and drought. There is no denial about the drought but many of our rural communities are still in denial about climate change.

While the access to water has been limited not so the ability of irrigation farmers to produce more with less. There has been enormous change in the way we manage and use our water for production. Today I would like to briefly look at how some of our irrigated agriculture sectors have coped with a shortage of water and their prospects for the future. Let us not forget "***There is a world shortage of food***".

Our media today is full of stories about drought, climate change and water shortages, these are all real for irrigators but for many of our city people they disappear with a dam filling rain. The link between food on supermarket shelves and irrigation has not been properly made.

Australia's irrigation area is about 2.5million hectares (much less through the drought) 0.5% of arable land but produces 30% of the farm gate value of agriculture and 50% of the economic value of agricultural production. Better definition of property rights and water trading has seen water move to higher value production. This in itself comes with associated problems of communities struggling in the wake of water trading out; but there are a number of communities gaining from water moving in. Water trading has separated water from land and made the transfer of this asset easier to occur.

Water trading and other rules like carryover of unused allocations have given irrigators more tools to manage their own risks instead of running to government every time there is a problem. The last couple of years have demonstrated how well markets can distribute water. Some sectors have no choice other than irrigation and must purchase water to remain in business others have alternatives.

Water trading has also been one of the best NRM decisions ever made. For years there was debate on how to move water from being used on inappropriate soils; this happened overnight without interference and everyone was a winner.

Dairy

I am a dairy farmer and whilst there has been a shortage of water since

2002/03 this is my first year of significantly reduced allocation. The allocation in August 07 was zero and by October this had increased to 16% of entitlement. We like most dairy farmers made the decision to sell our water at prices above \$1,100 per ML this enabled the ability to purchase of 3 tonnes of dry matter per ML of water sold. If I had used the water on farm I may have grown 1 tonne of DM/ML. Our production this year will see an increase of about 40% by years end (the herd is 8% bigger in numbers). We have been able to fully feed our cows but the important factor in this is the price of milk; it too has increased by 40% meaning the economics are there to fully feed your cows.

In the future we will not return to wall to wall perennial pastures that require irrigating throughout the summer but concentrate our water use in the growing season from autumn to the spring. We will grow more annual crops and store the harvested silage and hay for use later in the year and in future years. Most farmers in the Goulburn Murray Region are taking the same approach, this type of farming will see returns of around 2 tonnes DM/ML. Farmers with the suitable soil types are growing lucerne, maize sorghum and other crops that can return 2-3 tonnes DM/ML. They are doing this with centre pivot irrigators and sub surface drip irrigation to maximise their water use and yield.

In the Goulburn Murray Region, the biggest irrigated dairy region where more than 50% of irrigation water is used for dairying the adoption records speak for themselves.

- More than 75% of the farms have a whole farm plan.
- More than 60% of the region has been land formed to provide better irrigation.
- More than 85% of water is used in conjunction with a reuse system.
- Automatic irrigation is becoming more prevalent.

Carrying fodder reserves forward to the next year will minimise risks for dairy farmers but we have already done this previously and the biggest risk we face is ourselves; we put more cows on because we have the fodder reserves.

Horticulture/Viticulture.

Horticulturalists don't have much choice other than to buy water, you can't feed trees anything else. But horticulturalists have a remarkable record of adopting new technologies; they have moved from flood irrigation to micro spray and drip technology., cutting water use dramatically.

The biggest change has been the adoption of the Tatura trellis and a complete refurbishment of their orchards with the irrigation technology. This doesn't come cheap; to replant an orchard you are looking at \$50,000 to \$70,000 per hectare depending on the variety of rootstock used. Viticulture will set you back about \$25,000 per hectare.

Most of the irrigation water that has been traded to other consumptive users has been bought by Horticulture and viticulture users and 100% of this water has gone into Greenfield developments using the latest and best technology.

Research has identified other irrigation management techniques like Root Deficit Irrigation and Partial Root Zone which can maximise water use and increase production. The Smarter Irrigation Research project at Melbourne University is monitoring other factors like leaf temperature, sap movement and fruit size to better utilize water.

Tomatoes, maize and other cash crops.

Australia's processing tomato industry is one great story of innovation and adoption of new technology, it has led most of the innovations in this sector. This industry has been driven by relatively low prices over a long period of time and has needed to respond to stay in business. The processors have worked with the farmers to ensure their long term viability against cheaper overseas imports.

There are fewer than 50 commercial processing tomato growers in the country. They nearly all use subsurface drip irrigation. They now install their irrigation with GPS precision farming technology. This enables the same dripper lines to be used over and over again. The CD from the GPS is used every time cultivation is required in that particular field enabling the growth of the right crops in the rotation between tomato crops. These rotation crops include maize, cereals and lucerne. The use of the GPS technology has extended the useful life of dripper lines to 25 years.

Rice and Cotton

The rice and cotton industries are much maligned by the media as inefficient users of water. We must understand they are annual crops and if the markets allow growers can opt to grow or not to grow depending on other choices in any given year. In the last few years there has been little of either grown. Following the drought breaking rains in the Darling River catchment and throughout Queensland I am sure we will see significant cotton plantings again next year. There has been widespread adoption of centre pivots and subsurface drip by cotton growers to stretch their scarce water resources further. The cotton industry has led the uptake of soil moisture monitoring to better plan irrigations.

This year will see a rice crop in Australia of about 15,000 tonnes, this compares to a record crop of 1,500,000 tonnes in 2001/02, just 1% of this harvest. The rice growers have improved their water use efficiency dramatically over the past couple of decades and are aiming for two tonnes of grain per ML of water used. The leading growers are achieving this target. This target includes the cereal crop grown after the rice crop to fully utilise the remaining sub soil moisture. Research into growing rice more efficiently is continuing.

Like all irrigated agriculture producers there is much goodwill among the rice growers to find efficiencies to provide more water for the environment, the MDBC has recently funded a project that will return more than 11,000 ML for

the outlay of \$44 million. This is what we require more of investment in savings to find our future water needs and maintain the productive base.

System efficiencies.

There have been dramatic improvements in the way our irrigation systems are managed, these are to maximise the benefits on farm and to ensure that water that is released from storages is released when it is required. Fully integrated system management that takes into account current climate conditions and evapotranspiration makes for a more efficient system. Total Channel Control technology, another Australian development is helping to improve the efficiency of irrigation systems to 85%; i.e. 85% of water that is released from a storage will be delivered to a farm. Many piped urban systems don't have this level of efficiency.

The CRCIF has a water use efficiency aim to double productivity while decreasing our water use. System Harmonization and the move to more efficient irrigation systems are a central part of this aim being achieved. But we still need to be mindful that the move to more efficient systems on farm that require pumping are going to increase our greenhouse gas emissions. Our gravity irrigation systems have a strategic advantage in regards to their energy consumption, we must be mindful of that before urging everyone to use centre pivots or other high energy irrigation systems.

Foodbowl

Many of you will have heard of the food bowl project in northern Victoria. This is a project to modernise ageing infrastructure, to match the water distribution to the needs of sustainable irrigated agriculture for the next century. This \$2.2bn project will see the investment of \$300 million on the trunks and carriers in stage one. The TCC technology will also help to identify expenditure of \$300 million on lining, pipelining and reconfiguration.

The largest component of the project \$1.6bn will be spent on connecting farmers to the system. You must realise that these farms were a different size 50 to 100 years ago and could only be supplied by gravity. This has all changed with farm amalgamations water trading and new technologies.

Research

There is much research being done into irrigation and water use but more needs to be done. Land and Water Australia has its National Program for Sustainable Irrigation, there is the CRC for irrigation Futures and projects like Melbourne University's Smart Irrigation Project looking at the use of better technology in irrigation decision making.

This combined effort will ensure the efficient use of our scarce water resources.

Remember every time you go to the supermarket you are an irrigator.