

## Going green helps farming sector grow

Dr. Peter Wylie 29/12/07

There have been many commentaries in recent times predicting the collapse of agriculture due to such problems as erosion and salinity. Drought has been a big problem in rural areas of Australia, but farm production is not unsustainable as suggested by Jared Diamond in his book *Collapse*. In fact, agriculture viewed on a world scale is an enormous success story, passing the ultimate test of sustainability, in that production continues to improve over time.

The biggest success story is grain production in the USA, where yields have doubled twice since the dark days of the 1930's when the 'dust bowl' heralded the collapse of agriculture. At that time American farmers produced 120 million tonnes of grain from 78 million hectares. In recent years they have produced 360 million tonnes of grain from only 60 million hectares. Improved varieties and farming techniques add an extra 6 million tonnes to the grain produced in the USA each year. Soil erosion, fertility decline and other land degradation problems have largely been overcome and soil health is improving.

'The Ploughman's Folly' was a book at the forefront of the farming revolution, just as important as 'Silent Spring' in transforming agriculture in the USA. Farmers initially switched from the mouldboard plough to the chisel plough, but now 2 out of 3 farmers use zero-tillage to keep a layer of crop residue on the soil, improving rainfall entry and protecting against wind and water erosion.

In Australia, land degradation is still of concern, but modern farming systems are starting to make a difference. Soil organic matter levels have been in decline, but are now starting to improve with the use of zero-tillage and better nutrient management. There is a way to go however, as adoption of zero-tillage in Australia is still less than 50%. On well managed farms, soil carbon is increasing and along with energy savings, this results in higher crop yields with lower greenhouse emissions.

Progress is being made on managing and reversing salinity in Australia. It is now estimated there is 2460 ha of land affected by farming induced salinity in the Murray Darling catchment of Queensland, and this area is declining, compared with a forecast made only 7 years ago, that salinity would affect 628,000 ha by 2015.

Salty water is a problem when it builds up as a rising water table. Salt tolerant grasses are helping to stem the tide in southern landscapes, but attention is now switching to making use of the excess water. Aquaculture, algae production for biodiesel or treatment by reverse osmosis, are options which will turn salty water from being a problem into an opportunity.

Farmers will need to need to double agricultural production over the next 20 years. World population will increase by more than 1 billion, but demand will also be driven higher by almost 2 billion people in Asia who have increasing incomes and will buy more and better food.

Oil prices continue to rise and while it is cheaper to produce fuel from grain than oil, production will expand. Biofuels will consume 100 million tonnes of grain, worldwide, by the end of 2008, a figure which could double by 2020.

When we consider world demand for wheat has exceeded production in 8 out of the last 10 years, this is some concern we may have reached Peak Food, a point where the world cannot increase food supply as fast as the demand.

However, farmers are already rallying to the task. Grain prices, which have languished below cost of production for years, have doubled or tripled over the last three years and this will stimulate more production. Farmers in the USA planted an additional 6 million hectares of corn this year, which produced an extra 20 million tonnes. Wheat plantings will increase and with farmers spending more money on inputs such as fertilisers, world production could increase by 30 million tonnes in the coming year. Weather is not helping however, and already the 2008 winter wheat crop in the northern hemisphere is in some trouble.

In Queensland, the trend for farming land to be converted to pasture is starting to reverse. A shortage of feed grain is likely to become a surplus over the next few years as yield improvement and extra area doubles the production of grain sorghum. Zero-tillage, controlled traffic farming with crop rotation and recycling of animal manures has improved yields and cut down energy inputs, compared to old fashioned farming methods, where organic matter was in decline and soil erosion a major problem.