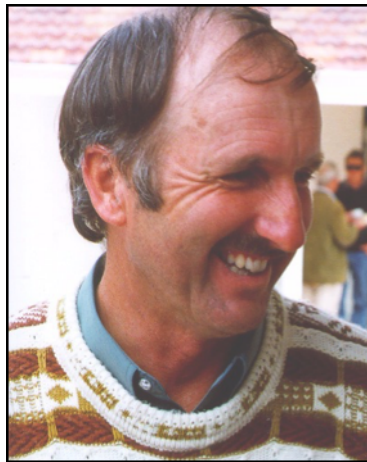




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Farming Within the Eco-System



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[Submitted Paper]

Payneham farm has been in the Watkins family since 1908, when Ron Watkins' grandfather began clearing the property. After seventy years of farming and gradual clearing, we began to see signs of increasing salinity and embarked on the process of integrated whole farm planning. Realising that water was at the root of the salinity problem, we sought to control and harvest surface and subsurface water flow to improve soil structure and create a large volume of stored water.

Controlling water

Since 1982 we have constructed 16 km of drains and connected dams on the property, with a similar number installed on neighbouring properties in the same catchment. The drains are surveyed on the contour with a slight fall of about 1 in 400. Drain lines are carefully surveyed with the use of a backhoe to ensure that the entire length of the drain is dug into the clay layer and that features like sand or gravel seams are avoided. The completed drain is often quite deep and must be fully lined with clay to prevent leakages. The depth of the drain also ensures that not only surface run-off is collected, but also the seepage water which flows along the top of the clay layer in these duplex soils. The positioning of the drains is associated with

what I call “significant landscape features”, such as dam sites and changes in ridge and valley slopes. The farm layout owes much to the Yeomans keyline system and the visit to the farm of PA Yeomans in 1980.

The drains are planted out with up to 1000 trees per kilometre in belts 4 wide, and protected with electric fencing. The deep drains cost around \$1700 dollars a kilometre including surveying, construction, levelling and tree planting (fencing not included). The impact on the farm, however, has been considerable. We now appreciate just how much protection these tree belts provide for stock and crops.

Controlling water has led to improved soil structure, and the increased water storage provides us with 3 hectares of irrigated lucerne and plentiful water supplies over the summer months when many of the neighbours are forced to cart water.

Towards the future

For many visitors to Payneham the drains, trees and dams are impressive but my visions for the future are far from being realised. What I’m trying to do – and it may take many years yet – but I’m trying to set up a system, I’m trying to work within the ecosystem to make everything a winner for me. Working within the ecosystem not only makes good common sense from a farming point of view, but also accords with my belief in an “environmental imperative” to repair the country. I am convinced that not only is it possible to farm and protect the ecosystem, but that the two must go hand in hand.

One of the keys to this vision is the promotion of diversity through the development of a host of integrated farm activities and the protection of the natural elements of the ecosystem. A truly sustainable farming system must improve and then maintain the health and vitality of the ecosystem as a whole. In an attempt to monitor environmental health and the sustainability of farming practices, the Land Management Society has produced a Farm Monitoring Kit. The Kit and accompanying handbook aims to provide the farmer with a simple set of replicable tests to build a database of environmental indicators and to monitor changes over time. The Kit includes tests of soil structure, salinity, pH, plant diseases, earthworms and bird and other animal counts.

I don’t think a sustainable agriculture for the future is just wool growing; you’ve got to look at diversity and a stable ecosystem is a diverse ecosystem. The trees, drains and dams at Payneham have not only protected and improved our current enterprises, but have opened up a whole array of new farm activities. With so much water on the farm we are keen to develop aquaculture and explore the potential of other irrigated crops. The tree belts need thinning and pruning to produce quality timber and could be planted with a variety of higher value timber and fodder species. A small apiary enterprise could make use of the ample bee fodder with the additional advantage of perhaps improving canola yields through increased pollination. Regular farm visits have opened the door to the growing industry of eco-tourism. We plan to build chalets on the farm to allow for more extended visits.

This notion of diversity and integration is something many visitors to the farm have difficulty grasping. Someone said to me it’s hard to get people to think in three

dimensions, well we had a group on the farm and I said to them “let your mind run because I’m going to try to get you into 12 dimensions. It is difficult for people (1) to get to grips with the process, and (2) to absorb all that the future might be for us.

Even the woolgrowing side of the farm could be significantly improved through the development of a rotational grazing system and the establishment of perennial pastures.

Under a rotational grazing system stock densities are increased and rotated through smaller sized paddocks, with the speed of rotation determined by the amount of feed available. The result is a more even grazing with a period of rest in which the pasture is able to regrow. Having been heavily grazed, a pasture plant sheds many of its roots before growing new shoots. If the plant is bitten off again before new roots have grown the plant is severely weakened and may die. Rotational grazing provides this protection from overgrazing with the added benefits of improved feed, reduction in parasites, increased organic matter through the shedding of plant roots and a more even spread of animal manure. Despite having only dabbled with rotational grazing, I am confident it would allow us to carry a significantly higher number of stock when fully developed.

People power

One of the problems of being a pioneer farmer is the deluge of requests for your time from people wanting to know more. It’s a real problem for me, because as I’m developing the farm it’s opening up whole new programs for me. I could be home here all the time and maybe three or four other families could be here, but I’m busy giving help to others.

While Suzanne and I look forward to the return of our son Brad from Muresk Agricultural college, our vision for the future of Payneham and the region will only come about with the return of more people to the country. We believe that not only is Payneham potentially capable of supporting two or three other families, but that returning more people to the land is essential to its future. We need more people in the country to look after it properly. The reason why most farmers have gone into chemical farming is because we’ve had this stupid idea of needing to get big or get out, and of course this has forced us to tear around at great knots with our cultivating equipment or chemicals to cover the country, and we’re just killing it.

At a time when others were getting big, we decided instead to get more out of what we had, and at the same time avoid getting ourselves into debt. That’s our whole philosophy, that’s why we didn’t get big, we wanted to make more use of what we’ve got here. We haven’t got an air conditioned tractor or anything like that, we’re just putting our priority that way. Instead of spending \$60,000 on a tractor we’re saying we’ll crank the old girl up for a year or two more and put some more trees and drains in.

This approach underlines my assessment of the economics of converting a farm to sustainable and organic enterprise. Whilst the price of change is often held up as the reason why many farmers maintain the status quo, I believe it is as much a matter of will and self-belief, and a determination to resist the pressures not to change.

There's a couple of pressures there; there's peer pressure because you're perceived to be a backward farmer. All the progressive farmers, whatever papers or "country comics" or farm journals you read, all the progressive farmers are the boys who are doing huge yields, all pouring chemicals into no-till farming, so you've got to fight against that sort of thing. And that questions your confidence; none of us really like to be left behind or be perceived to be weird. Then there's also the lack of research backing; there's just no research for non-chemical types of farming. And then you've got to look at your market development. Your grain pool and wheat board, they'll only market the traditionally grown material so you're out in a really shaky piece of territory unless you've got confidence or a will to go that way. For me, even after all these years, I still wobble some times and think good grief maybe I've got it all wrong.

Despite international recognition, growing local interest and enviable margins on my no-spray Canola crop, I am not immune to the pressures facing today's pioneer farmers. While I have no doubt that current farming practices must change, I still find it difficult to "go the whole hog" and drop the last vestiges of chemical farming. As my system matures and confidence grows, the continuous use of "imported" fertilisers comes under closer scrutiny.

For those farmers wishing to make the change today, properties such as Payneham are showing that it can be done. While the system at Payneham is still establishing itself, I am able to show others a working example of what can be achieved in 14 years of redevelopment. It's still scary but when I started it was just an idea, a theory – now it's a reality.

As woolgrowers, our future looks remarkably bright. Aside from the healthy returns on canola, the improvements to be made to pasture and grazing management and the myriad of potential enterprises to be integrated into the overall system, there are other indicators of a positive future. Less tangible but no less important are the encouraging words of visitors to Payneham and the return of orchid flowers in spring in a patch of fenced off remnant vegetation. For me these are not only a reminder of the past, but also a sign of a future in which farmers will learn to respect the great diversity of life on which they are ultimately dependent.