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Broadacre Field Trip

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Forty members of the international permaculture community left the Conference on October 2nd for a three-day tour to view sustainable farming developments in the wheat belt of southern Western Australia.

Travelling to our destinations, we passed by seas of traditional wheat fields, dotted with salt scalds – 44,000 ha of land in WA has been lost to salt. There was only the odd tree, which was often dying from ‘rural pest overload.’ A depressing sight, occasionally relieved by the sight of water catchment reforestation and measures to reduce the rampant soil salinity problems of this region.

Avondale Research Station

At a brief stop at the Avondale Research Station, we saw examples of more sustainable farming systems – wheat and sheep fields with long contour banks and bush on hilltops for water harvesting and control. Acacia saligna and saltbush were being grown in strips for perennial sheep forage. Fat-tailed Awassi sheep from the Middle East were kept for milking.

Prema Organics

Our next stop was Prema Organics, an 35 ha farm run by Allan and Eileen Falkson, set up on permaculture lines. This farm’s produce enjoys A grade Demeter (biodynamic) status. It also boasts the largest private stand-alone power system in the state, with a large wind charger and solar panel bank, and 80 kW of power storage.

Once again, soil salinity has been a challenge at Prema. Salt seepage in the large dam has been somewhat ameliorated by installing a 100mm pipe below the overflow. Because salt water sinks, water pressure pushes it out – the pipe acting as a self-siphoning pump.

Many crops initially planted here were lost to salt, including 800 grapevines. Searching for a solution, the Falksons discovered a special American filtering device based on precious non-ferrous metals – the Aqualine Catalytic Water Conditioner. It cleans up chemicalized and mineralized water and converts salt so that plants won’t take it in. They found it very effective, although the initial purchase price could well be prohibitive to some – filter prices ranging from \$600 to \$28,000.

Produce is starting to come in from 2 to 3 year old fruit trees, vegetables and the 100 Isa Brown hens in their mobile hen 'tractor.' Compost is made in windrows with the help of an army of worms.

Some of the more esoteric methods used there included placing rose and white quartz crystals around each tree (white crystals are purported to attract moisture). A 'Tower of Power' has been installed to set up an harmonious subtle energy field on the farm and increase fertility-inducing paramagnetism in the soil.

Other problems encountered at Prema included marauding parrots which decimate sunflower and almond crops. Sorghum has been grown as a sacrifice crop for them. 'Curly leaf' on stone fruit has been helped by placing eucalypt branches around trees in springtime; trees without this treatment producing the worse fruit.

That night we camped at the Dryandra Forest Camp and shared our barbecue with Woylies, a small marsupial brought back from imminent extinction by a careful campaign of fox baiting.

The Woodward's farm

Our next stop was the 1200ha farm of Peter and Karen Woodward, east of Wick-epin, where rainfall is low – approximately 300mm a year. This family farm is now converted to organic sheep and wheat production. There are many kilometres of contour earth banks which mimic natural drainage patterns disturbed by decades of farming.

Aquaculture (yabbie ponds) and tree crops are new sidelines. Every year they have planted an Oil Mallee woodlot. This year six people in a ute planted 10,500 mallee trees over two months; while two families are being fed from the vegetable garden.

The Woodward's sell grain (much is pooled with non-organic wheat) and organic flour, milled at Corrigin. The certified A Grade organic wool is popular with the Japanese, who have strict controls on effluent from wool scouring. Some lamb is sold for the organic meat market.

Since going organic, no summer wind erosion has appeared, despite being very dry. The health of sheep and the Woodward family has been very good, too. Originally Peter's father farmed virtually organically, but problems arose when superphosphate came on the scene. Salt scalds are often full of nitrogen and phosphorus, from the aftermath of 'super.'

With the sheep, some problems have come up with the large (1500 ewe) flock size at lambing time, when they prefer to be in smaller groups. But this size flock is great for fast rotations. For ideal pasture growth they reckon the sheep would spend just one day in a 20ha paddock, whereas the Woodward's paddocks are about 40ha each.

Scouring and worms are greatly prevented by such fast rotations. Organic drenches of copper sulphate, dolomite, garlic and cider vinegar are also good for worms (although too much copper sulphate can kill sheep). Home-made mineral licks are given to provide the sulphur needed to help prevent worms and lice (as residual superphosphate has locked up sulphur in the soil). Culling the least healthy sheep

also means natural health will prevail. Healthy-looking sheep have surprised them when faecal samples have shown a high worm count. Healthy sheep can obviously handle worm infestations.

Earthworks on the farm have been installed with the purpose of achieving 'water balance' in the landscape. This is because excess water pushes salt up to the surface. In winter, their wet season, much waterlogging can occur if bush has been removed and natural drainage patterns have been disturbed. The Woodward's' interceptor banks are clay-sealed to hold rainfall where it falls on the slope. They have a very slight slope (1 in 1500) along the contour to send water to various ponds. Waterlogging has been greatly reduced.

Much work has also been done to intercept underground water flow, by deep soil drainage with slotted agricultural pipes over plastic sheeting, placed 5 to 7m underground. Harvested water is sent to underground bores for use.

The Watkins' farm

We travelled next to the farm of Ron Watkins, a keynote speaker at the IPC6. In 1988 he was awarded a Churchill Fellowship. In 1995 he was the WA Rural Achiever of the Year, winner of the Department of Environment 'I Can Do That' Award, the only Australian recipient of the prestigious UN Global 500 Award and a UN Environment Program award winner – one of eight people selected worldwide as a success story in combating land degradation and desertification. The Watkins farm is a showcase of holistic farm planning.

In 1908, the 552ha of land was selected from bush, and later Ron's mother was born in a mud hut. Most tree-clearing was undertaken in the 1950s, when bulldozers were available. Ron returned to the farm in 1973 and saw salinity problems starting to surface. Whereas his mother had once had a good market garden of five acres, now the orange trees were dying and the farm pond was growing salty. Visible salt expression appeared in 1976. Ron decided that water mobilising salt was the underlying problem, so he set about finding a solution.

He calculated that over the 552ha, with the average rainfall of 580mm, meant 3,000,000m³ of water was falling there annually. If 10% of this run-off could be collected, it would be enough to irrigate 30ha of land. The control and use of surface run-off water, he decided, could be a key to the sustainability of the farm.

So, in 1982 he put in the first large dam, of 30,000m³ capacity, and the locals thought that it would never fill. But it did fill, and quickly, too. Ron soon realised that gravity was an important energy to be harnessed. So he built dams high in the catchment, for irrigating downhill. Lock pipes were installed to release water for irrigation. P. A. Yeomans was invited to help design the system. Yeoman's ideas were modified by Ron, who believes they do not have totally universal application, because every situation is different.

After studying the WISALTS methods (of the Whittington Interceptor Salt Affected Land Treatment Society) he started to put in contour banks, designing them to pick up water that ran on a sub-surface clay layer and run it into his dams. Thus he prevented aquifers from recharging to stop salt movement, which manifests about

thirty years after tree clearing. On the valley floors, he planted thick tree belts on top of the banks to harness deeper water movement and provide wildlife habitat and windbreaks. Bird species observed have nearly doubled since. Carob trees have been established on some banks. Nowadays, 10 to 15% of the farm is dedicated to tree belts, which are generally placed 150m apart. Another 10% of land is fenced-off waterways. There are 12km of drains, all double-fenced, and with a 1 in 400 gradient.

So Ron was able to turn water “from a problem into a resource.” Whilst salinity is still around, he reckons it may take another twenty years to reverse the decline. In the meantime, he may be able to grow salt water fish in salty dams, or siphon salt out of them.

While farmers on adjacent lands have been going bankrupt, Ron has kept his head above water with his sheep and beef farming. He grows crops, generally without sprays and little fertiliser, of canola and buckwheat. He also leaves the farm to consult others on farm planning, but this is only a small part of his income.

Droughts affect him far less than his neighbours, and his fields stay greener longer than theirs. He never loses sheep when they are off-shears, because they can shelter behind windbreaks. “And you just can’t put a price on that sort of peace of mind,” he says.

Forest encounter

We left our Dryandra Forest camp the next day, heading for Bridgetown and the Permaculture Convergence, deciding first to make a quick detour to the tall remnant forests around Pemberton. The Gloucester Tree is a tourist attraction, which you can climb 150m up to a fire-spotting platform, from which you have fantastic views.



Tsheppo Khumbane with Aboriginal elder Nancy Rodgers

It just happened that it was the 50th anniversary of this fire tower and a forest festival was on. We were in for a treat. A group of local Aboriginal people arrived to put on a display of their culture. We watched with fascination as the chief of the local Aboriginal Land Council demonstrated how to make a traditional knife, called a tarp. He showed us how to make glue from the resin of the grasstree mixed with ground charcoal and kangaroo dung. The powder was then heated on the end of a specially prepared stick in layers, until it was possible to embed sharp silicate stones into it. The tarp was presented to South African delegate Tsheppo Khumbane, who was greatly touched. When it was time to leave, we sang a South African song, Tsheppo had taught us, to the Aboriginal group.

More information

For more information:

- Towers of Power: contact members of the Natural Resonance Study Group, c/o 38 Bellevue Terrace, Fremantle 6160, WA.
- Prema Organics: Allan Falkson, PO Box 583, Narrogin, 6312, WA.
- Land Management Society: (runs monthly tours of Watkins' Farm) PO Box 242, Como, 6152, WA.