

Case study Soil Compaction

Chris Johnson and Joe Seawright - Beef Farmers, Ripplebrook

Areas of concern

- Soil Compaction
- Poor pasture growth
- Lack of paddocks
- Unfenced river
- Gully erosion
- Lack of shelter



Remnant trees and revegetation line the fenced off Lang Lang river.

Benefits

- Higher stocking rates
- Much faster bounce back of grass after grazing
- Greatly improved pasture quality
- Improved stock water quality



Some of Joe and Chris' balancer herd at one of their gravity feed troughs.

Below: Fenced off spring fed dams and gullies



Action Taken

- Aeration and ripping
- Application of chicken manure, lime, gypsum and Nutrisoil
- Summer crops of chicory and millet
- Fencing off river, fencing into 24 paddocks
- Rotational grazing
- Fencing and revegetating spring-fed gullies
- Fencing off and planting above dams

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Chris and Joe with one of Joe's 7 tractors

When Chris and Joe first purchased their property in 2006 it had been run virtually as a single 220 acre set stocked paddock with an unfenced boundary along the Lang Lang river and electrified barbed wire on the other boundaries.

There was extensive soil compaction and several spring-fed gullies feeding the river were badly eroded and permanently pugged even in dry years. There was very poor pasture growth and virtually no shelter, particularly from the icy winds that blew across the river flats in winter.

Having come from drier less fertile country north of the divide to the high rainfall and fertile soils of South Gippsland Chris and Joe found themselves on a steep learning curve. They rose to the occasion doing a Whole Farm Planning course, iFarm, a Warragul and a DPI Beefcheque course as well as a Practical Beef Marketing and Breeders for profit course.

As a result of their courses they developed a long term farm plan to:

- Remediate their compacted infertile soils
- Improve the quality of their pasture
- Create paddocks for rotational grazing
- Fence the river
- Plant shelter belts and revegetate gullies

Who:	Chris Johnson and Joe Seawright
Where:	Ripplebrook
Size:	220 acres
Enterprise:	Angus/Geibveih cross balancer beef herd. 120 head including replacement heifers. Take on training cattle to sell in good seasons.
Soil:	Sandstone derived Strzelecki light clay to clay-loam.
Rainfall:	1000mm
Aspect:	Southeast to north slopes and river flats.

Grazing Management

Chris and Joe have broken up their Property into 24 paddocks with some more to come. They rotate their stock at 3-5 days per paddock and move them prior to the grass getting down to 1200kg of dry matter and return them to paddocks at anything above 2500kg of dry matter. They say the grass bounces back much faster with this regime than if it was eaten down to 900 or 1000kg. To fill the summer feed gap they plant around 16 acres of chicory and 5 of rape and millet. They grow their own hay and silage and run at a DSE of around 33.

To provide water to their paddocks Chris and Joe have set up a gravity feed trough system from a series of spring-fed dams set high on the property. The dams were badly degraded when they bought the farm and they have since been cleaned out, fenced off and planted out up-slope to filter run-off. Clean stock water was a priority as it creates better stock health and studies have shown clean water can increase stock weight gain by up to a quarter!

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Aeration and fertilising

To break up the deep hard pan created by decades of soil compaction Joe used an Agroplow as a deep tined aerator with 4 tines set at 600mm centres to a depth of 175 to 225mm. While the Agroplow can take up to 7 tines Joe says the 600mm spacings break up and aerate the soil without creating too much damage to its structure or biota.

For general conditioning of paddocks where deep ripping is not required Joe uses an Aeway rotating tined aerator that turns the soil to a depth of around 100mm. The aeration allows water and oxygen access to the soil as well as creating the right conditions for deep root penetration growing a longer lasting more resilient pasture.

To complement their aeration Chris and Joe use a range of natural fertilisers including lime, gypsum and Nutrisiol: a soil conditioner derived from worm castings provided from large scale worm farm sewage treatment systems. Aeration and fertiliser application is done in the spring.



Pasture showing a good mix of species



Paddock regrowth 3 weeks after grazing



Joe with the agro-plough set up as a 4 tined aerator

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Revegetation and shelter belts

After fencing off the river Chris and Joe set about repairing the river bank that was badly eroded from decades of cattle damage. While there were some large trees remaining there were also large areas of bare eroding bank and virtually no under-storey, with some of the remnant trees in a stressed condition. They planted 2200 indigenous trees and shrubs along 2.2K of river frontage and they now have a healthy strip of bush holding the bank together. This has also excluded cattle from the river eliminating the stock losses they experienced before fencing.

As a result of their iFarm aerial photography Chris and Joe got a birds eye view of their unfenced steep gullies feeding into the river. This along with having to pull cows and calves out of the mud motivated them to apply for a Land Stewardship grant to fence and revegetate their gullies.

They were successful in securing grants for two projects, one complete and one to be done in 2012. As well as fixing the gullies their first project has also fenced off and created a vegetation filter around their two major spring-fed stock water dams.

Chris and Joe are also in the process planting a network of shelter belts around the property to provide stock and pasture shelter and create a more pleasant working environment.

As well as trying to make some money Chris and Joe say their ultimate ambition is to leave the property in much better condition than they found it. Which is of course the essence of Land Stewardship.



A remnant fern patch above a spring fed dam, fenced off and ready for planting.



Joe with their one hereford , a reminder of their days north of the divide.



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