



Ashes to showers, dust to crops

Five ways farmers across NSW have regenerated parched properties to make them not just drought-resilient but richly fertile

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Following the principles of holistic land management has enabled NSW properties Bibbaringa, Billabong and Full Circle Farm to thrive despite harsh conditions, and owners Gillian Sanderson, Glenn Morris and Shannon Kelly have some insights to share.

100 per cent ground cover, 100 per cent of the time

On 8 August 2018, when it was declared that 100 per cent of New South Wales was in drought, Gillian Sanbrook posted a video to Facebook: a trail of 320-plus-kilogram steers, moving slowly from

a grazed paddock into a fresh paddock to nibble contentedly on long green grass—behind them, the sunset, over a dense line of bushland.

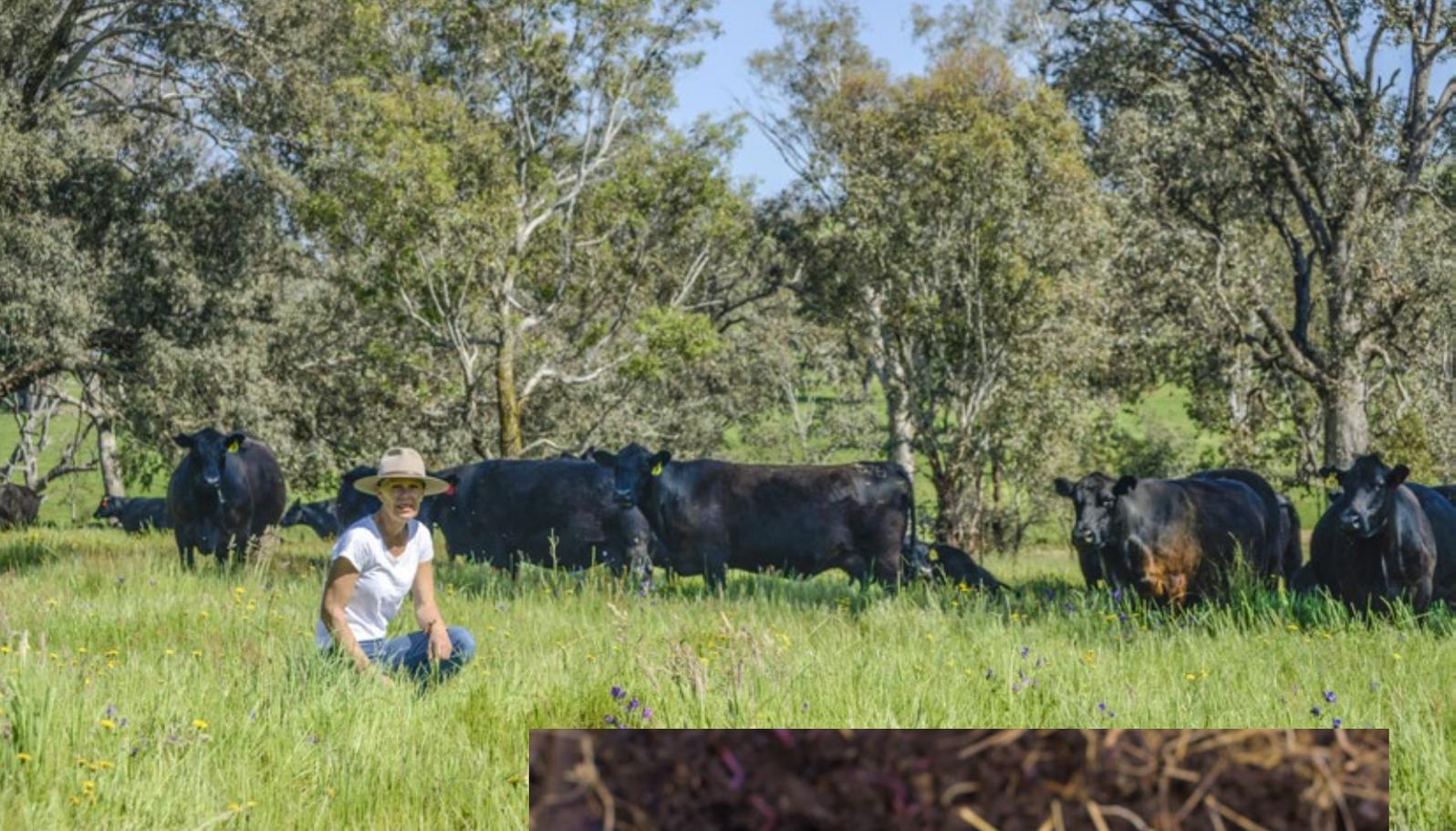
“I’ve had less than half the average rainfall this year—which is more than a lot of people—but my property is still green and growing,” Sanbrook wrote. The video received more than 30,000 views.

But 1000-acre [405-hectare] Bibbaringa wasn’t always this way. When Sanbrook bought it in 2007, during the Millennium drought, it was overgrazed and overrun with rabbits and Paterson’s Curse. The soil, creeks and gullies were eroded. Whenever

there was a downpour, water poured off the slopes. And it was overstocked, with 600 cows, 2000 sheep and 90 horses.

According to Holistic Management principles, ground cover is top priority, Sanbrook explains, “Because if you’ve got ground cover, you’ve got photosynthesis happening, utilising the energy from the sun and producing good root structure”.

And good roots keep the rain where it falls. “I will sell stock if I think the ground cover is going to be threatened,” she says. In fact, the first thing Sanbrook did after purchasing Bibbaringa was de-stock and rest the property for six months. ▶



Bibbaringa's 23 paddocks were then subdivided into 63. "And once the rain started to come, we only had a small number of stock and moved them around in a Holistic Management planned rotational graze," Sanbrook says. There was no pasture renovation; "I figured the plants would appear that needed to appear." And after just one year, the Paterson's Curse and capeweed disappeared and Bibbaringa's ground cover increased.

Just like Bibbaringa, Glenn Morris's NSW Northern Tablelands property Billabong was significantly degraded when he started work on it. "It took about five to eight years to really get that soil health back and holding water," Morris says.



Morris is the organic beef farmer who twice saddled up his horse, took it down to Sydney and rode across the Harbour Bridge, leading the Time2Choose rally to raise awareness of environmental issues affecting farmers (pictured left).

Morris and his family help run two properties for FigTrees Organic Farms, practising 'biological farming' and regenerative agriculture, with a focus on soil health.

Through the dry months of 2018, Billabong has maintained 100 per cent ground cover, and Morris, like Sanbrook at Bibbaringa, makes this a priority. "The main thing is we don't take pastures too short," Morris says. "We make sure to keep a residual of grass there so you've got some roots holding the soil together."

Morris believes ground cover can be achieved even in severely dry areas. "We're in a terrible drought, but you look at the side of the road even in those really bad areas, and there's still ground cover," he says. "It's dry but it's still there."

2 Keep stock on the trot

Sanbrook has a strict grazing schedule and buys stock according to rainfall predictions. "I know in the next 90 and sometimes out to 240 days where the cattle are going to be. And if I start to move faster than I should be, I can very quickly see that things are not going as well as I thought they would, and I have to de-stock early and sell them directly to the grass-fed, no-hormone and no-antibiotic market," she says.



A sense of humus

Graeme Sait from Nutri-tech Solutions, based in Queensland, says, “We need to return to that ancient wisdom that saw the definition of *humus* and *human* as being ‘of and for the earth’, and we need to reclaim the *humility* to work with nature rather than this constant striving to master her.”

Sanbrook doesn’t worry about rebuilding stock in the future. “I know I can buy the same or better quality again. The genetics in Australian livestock is just so good.”

It’s not just experienced farmers trialling new management systems. Young father of two Shannon Kelly, who runs pasture-based, regenerative Full Circle Farm in Dooralong Valley, has a vision: “to produce food without destroying nature—not just sustaining it but regenerating it, leaving it in a better state for our children”.

For a start, Kelly doesn’t make hay. “From spring to autumn, we’re struggling to have enough animals on the property—but then we have a dormant period of around 120 days over winter where grass is shut down,” he explains. “So, coming out of autumn, we stockpile our grasses and

“Our chickens follow behind, scratching through the manure, eating creepy-crawlies and adding their own fertiliser.”

instead of harvesting it, we leave it in our paddocks to dry. Then we ration it out to the animals using electric fencing.

“We sell our beef to a customer base locally on the coast—we start processing in January, almost halving our herd size going into the dormant period. Then, come spring, we stock up with weaners.”

Kelly says his animals are a vital tool in building drought and flood resiliency into Full Circle Farm: “If the ground is covered by mulch from cattle hooves or a thick sward of pasture, it takes longer to dry out, keeps the soil surface cooler and encourages earthworms. Our cattle are moved daily, mowing down and fertilising the grass. Our chickens follow behind, scratching through the manure, eating creepy-crawlies and adding their own fertiliser.” ▶



3 Micro-city population boost

Morris says, “The foundation of society isn’t the city above the ground; it’s the city under the ground. And unfortunately, synthetic fertiliser and chemicals are absolutely annihilating our soil biology.”

The city underground—home to diverse organisms, from bacteria to fungi, algae, worms, ants and even small animals—thrives on humus, the dark-brown organic fertiliser from biodegraded dung and dead stuff that’s so rich in carbon and nutrients.

Morris notes that humus also improves the water-retaining properties of soil. “If we add an extra 10 per cent of humus into the soil over one hectare at 30 centimetres of depth, we [can] store an extra 1.6 million litres [of water] per hectare—we start getting rivers flowing; we start creating abundance again.” And miraculously, “by holding the water, when it does rain, in that sponge that is healthy soil, you actually get more rain, because the vegetation pumps it back up and creates more rain”.

4 Happy plants and a rain dance

The simplest way to build humus is to start enhancing perennial grasses and trees, but it takes time.

Sanbrook’s Bibbaringa now has more than 60,000 native trees, most planted a decade ago using government grant funding. “We planted eucalyptus, wattles, hakea, she-oak, shrubs, trees and grasses in fenced tree-lots up to 16 hectares in size,” she says.

Sanbrook considers factors such as the organic-carbon percentage and the water-holding capacity of the soil as other tools with which to create income.

“A lot of people think, I’ve got to make money first, and then the rest will just fall into place. Well, I think it’s the other way around,” she says.

When Bibbaringa’s dams and creeks were filled to capacity, Sanbrook added contours, slowing the flow of water through the landscape. Now water was being stored underground, in dams, and along the contours.

She says, “It doesn’t happen as quickly as going out there with tractors and sowing seed into the property using artificial chemicals and fertiliser. But you get the results.”

Fran Boden’s tree teamwork

Dharawal elder and environmental scientist Fran Bodkin, who wrote *Encyclopaedia Botanica*, recommends planting several complementary species together. “Our ecosystems grew up with each other for millions and millions of years and they have learnt to support each other. They need each other,” she says. Bodkin recommends combining *Geijera* (wilga or native willow) to provide fruit for birds, *Eucalyptus populneus* (poplar box) to attract good insects and birds, and *Brachychiton populneus* (kurrajong tree) to “bring the water up”.



Education

Morris, who did a Masters in Sustainable Agriculture at The University of Sydney and a dissertation in humus, suggests visiting The National Association for Sustainable Agriculture website, nasaa.com.au

Sanbrook enjoys Peter Andrews' writings: find them online under 'Natural Sequence Farming'.

Kelly studied Holistic Management through Inside Outside Management: insideoutsidemgt.com.au, and suggests looking up the Ted Talk on turning African deserts into functioning grassland, with Allan Savory, the father of Holistic Management.

5 Ch-ch-changes...

In Morris's opinion, adopting regenerative agricultural principles has worked for so many people, you could call it a movement. A recent study conducted by the ANU Fenner School of Environment & Society looked at farm profitability and biodiversity, comparing data from regenerative farmers and traditional farmers.

Morris says, "We stacked up as good or better as conventional farmers in terms of financial outcomes, and in terms of ecological and personal, general health, we were way out in front."

But farmers need support to take such long-term strategies on board.

Fiona Simson, President of the National Farmers' Federation and a farmer from the Liverpool Plains, says: "What we need now is stability and continuity of leaders. Farmers deserve nothing less. Our cotton and grain industries lead the world in water-use efficiency. Farmers have significantly reduced their reliance on fertilisers and chemicals. To keep agriculture growing to become a \$100 billion industry by 2030, we need to build resilience and these modern skill sets into every farm business."

"We need to remove much of the red tape applied to land management," Simson says. "There are market-based options that will deliver better outcomes for biodiversity by valuing public good conservation on private land and rewarding farmers for protecting threatened species."

In the meantime, education is the key to empowerment for farmers.

Sanbrook put it best saying: "You can plant a tree and it will be there for 100 years. But education just goes on and on and on." 

Need a hand?

For a comprehensive guide to available drought-assistance options, visit the National Farmers' Federation at nff.org.au