

There's a sign on the fridge that Upper North farmer Trevor Gum's kids put up that reads, "Live as though you will die tomorrow but farm as though you will live forever!" Maybe you've seen it before on yet another bumper sticker? But up here, on this farm 20km north of Goyder's line between Orroroo and Wilmington, it has taken on real meaning and provides direction for practice changes that will enhance sustainability and keep the property viable.

Practice Change Puts Upper North Farm on Path to Sustainability

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Sheep on Coomooroo Hill in 2008

Trevor, his wife Dianne and their three children Kristie, Rebecca and Sam comprise the fourth generation of Gums who have been farming the Willowie Plain property since it was settled in 1888. At 2000ha it is near average in size for local holdings and a further 1200ha of leased land is also part of the operation. Rainfall averages 300mm annually with about 230mm falling during the growing season.

Soils are predominantly clay loam with a significant area of salty soil.

In terms of land use, about 1000ha is cropped as a wheat / wheat / barley / pasture rotation. Another 570ha could be arable but has recently been taken out of monocrops such as wheat and returned to pasture. Non-arable hilly pasture comprises 360ha and a further 22ha is permanently fenced creeks closed to grazing.

Sheep are an important and growing part of the total operation. The Gums run about 1500 Merinos comprising 750 mating ewes plus hoggets. July lambing has been considered as a way to increase lambing percentage but because the summers are so tough April-May lambing is still the rule.

Motivation for change

Trevor Gum admits that indicators of difficulty and a few warning bells were obvious in hindsight but things were brought sharply into focus by when he looked at a couple of photographs.

"I had a student vet here to do a sheep placement back in 2008 who sent through some photos she took of our terribly bare hills. That was probably the turning point. When you are there by yourself you can always find a little bit of cover in the paddock but a photo doesn't lie. Even though it was a drought year, I thought I could do better than that. Something had to change.

Crop yield variability seemed to be increasing and risk was exacerbated by the rising costs of inputs. "The top part of our property has soils with naturally high salt content. If you get spring rains it will wash the salt



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down and crops will survive but with a tight finish we're in trouble. An example was last year when I only reaped 2/3 of this paddock whereas the year before it went just shy of 2t/ha. We can't afford to have that variability in cropping so that is one of the reasons that the stock are becoming more important now."

Another reason was succession planning. The Gum children are adamant they do not want the family farm to be sold. Trevor and Dianne are keen to put in place a system that all three of their children can benefit from whether they return to work the property as daughter Rebecca may do or if they make other arrangements for management.

So what would change look like?

While cropping continued to be hit or miss Trevor knew that the ability of the country to turn out good stock was much more reliable. "In a strip up from Booleroo through this country stretching out to Carrieton is some of the best grazing for growing out ewes. So I thought, why don't we work on our strengths when cropping is a weakness because of the costs of inputs and variability of yields?"

As Chairman of the Upper North Farming Systems group and with significant input from Rural Solutions SA, Trevor began to explore options for increasing the livestock productivity of his land in a sustainable way. The group began to investigate better grazing methods and started looking at the potential of native grasses to re-establish sustainable feed.

Grain and Graze 2 project funding made it possible for Rural Solutions consultants Michael Wurst and Jodie Reseigh to use tools such as satellite imaging to identify areas of the property with lower productivity which could be zoned for grazing native pastures rather than cropping.

With encouragement from friend Neil Sleep at Dawson who had made changes to his grazing system nearly a decade ago, Trevor decided to introduce rotational grazing in order to encourage the return of native grasses and increase pasture productivity. Many farmers view rotational grazing as something to be done only in wet or summer rainfall country but Neil convinced Trevor that it could work in his area.

Key Strategies

Rotational grazing

Trevor freely admits that as he was in the "set stocking frame of mind" he found it difficult to understand how Neil Sleep could make good use of a pasture grazed for 7 days and rested for 120.

"But when you sit down and calculate the DSEs he was actually getting more grazing off an area than I would using set stocking."

Aside from increases in carrying capacity there were also benefits in the ability of grazed areas to recover much more effectively. Trevor likened the sheeps' experience of rotational grazing vs set stocking to people invited to afternoon tea at a local hall.

"If you were sent in to get your feed and you only had 10 minutes you would just grab as much as you could, a bit of everything, and out you'd go. If just a few of you went in for 3 or 4 hours you could slowly go through and pick out all the cream cakes and not worry about what might not taste as good."

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“That’s what the sheep are doing with rotational grazing. They eat a bit of everything. They won’t just eat the Wallaby grass, so it doesn’t get eaten out. When sheep are set stocked they will eventually kill out the more palatable species and you’re left with species not normally part of your ground cover. They are much less selective if they are all jammed in.”

According to Trevor, it takes sheep about three weeks to acclimatize to a rotational grazing system with numerous smaller paddocks. Because water is available just a short walk away, there is no morning and evening rush for water so smaller troughs easily accommodate the smaller groups of sheep that drift in all during the day. They also seem to understand the length of the rotations. They soon work that when you come to open the gate to move them on the sixth day, its time to come along.

“Once my system was up and working, I couldn’t believe the calmness of the sheep. They become easier to handle. I don’t need to use sheep dogs.”

Changing livestock type on salt ground

A problem with ewes abandoning lambs was occurring on one of the original homestead blocks. Working with livestock advisor Daniel Schuppan who was with Rural Solutions SA at the time, they determined that a bore formerly producing water at 5500 ppm was now at 8000 ppm, which would not support lactating ewes. The salty soils running up through that block made it more suitable for dry stock so that change has been made.

Sow improved pasture

Attempts have been made with ‘pasture cropping’ to sow native grass seed between wide rows of barley. “I’ve altered an old 3 row wideline airseeder back when we first started this and put it onto 18” (450mm) spacing.”

Trevor felt that the airseeder left the ground too rough and got a better result on the germination of natives by just throwing seed out from the back of a ute. “We do have a brush harvester and cleaning system under construction and we are going to get a native grass hopper for spreading the seeds.”

“With pasture cropping you are basically sowing ‘lollies’ with barley or vetch and the sheep concentrate on that and let the natives get away. In the future, Trevor plans to crop and sow pasture seed with a disc system.

“The number one thing in this system is having ground cover. With summer rainfall the natives can enhance fertility, which then benefits the winter crops. In this country we seem to be getting more summer rainfall events so that when we get our natives established and not eaten off they can respond very quickly to maintain cover.”

One set stocked paddock remains where cover is much less than rotational paddocks and probably won’t respond to a summer rain in the same way to replace the cover and let feed get away.

Trevor is still exploring the best times to sow and harvest the various native grasses to ensure the most viable seed. “The window of opportunity to harvest the natives is very small because it only takes a couple of wind events and they’re gone. I think the best strategy for sowing native grasses is the management of the paddock and letting them self sow. You can give it a little encouragement by spreading seed if none is

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Trevor Gum on Coomooroo Hill Sept 2012

nearby but self colonization and good grazing management will slowly bring it back in.”

Often the first things to recolonize will be less desirable ground cover like bitter saltbush, blackbush and bindi-eye because the grasses are so depleted. However, through rotational grazing, better value feed like Wallaby, Windmill and Speargrass are slowly returning. “We haven’t been in the system long enough to see that on a big scale yet.”

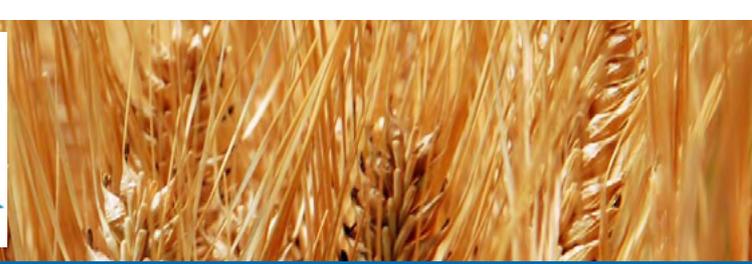
Utilise non-arable pasture

With the property on the side of a hill here there are many paddocks fenced on the ridge top boundaries that might contain 15-20ha of hillside which cannot be cropped. Fencing that off has meant better utilization of the stubbles. It also means that area can be put into the rotational grazing system. Stock can now have a quick graze with whatever DSE suits the amount of feed.

Utilise Hot-Spots Funding to remove stock for 5 years

Anne Brown from Greening Australia assessed the range of native plant diversity on the Gums’ property as suitable for Hot Spots funding where compensation is allocated for removing stock for a period of five years to allow native plant populations to regenerate. Trevor has been most impressed with the recovery of native species such as Senna and Sida bushes on the 100ha that has been locked up.

Over 22ha of creeks have also been fenced off from stock with the encouragement of a local police officer who enjoyed propagating native plants..”



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Fortunate timing

Trevor is the first to admit that he was fortunate to begin the program when he did. A year like 2010 was a great one to start encouraging native plant regrowth.

“The speed of recovery is amazing. The good season meant I was able to take stock off places to allow regeneration and still have feed elsewhere. The only drawback was not having enough stock numbers then because we were still destocked from the drought.”

Holding the water

Now that the cover on the paddocks has increased dramatically, so has the water holding capacity, which in turn leads to better recovery from grazing.

“When those hills were bare I was sending down huge amounts of water. I couldn’t believe I was giving it away! My neighbor now comments that since I have changed things up on the hill he’s not getting any water in his yabbie dams. We are holding it on the land and that has to be a good thing for us.”

Cost vs. Benefit?

Trevor feels that the direct costs of fencing and time out of grazing are considerations that will be outweighed by savings in supplementary feed down the track. Feeding has usually been necessary to keep sheep in a condition score for ewe fertility or sale sheep.

“Fencing is considered an asset. The biggest expense is trying to find time. I haven’t used contractors so it’s only been material costs and wages for a helper. I’d be more nervous if I had to go in with contractors, especially in some of the steeper country.”

“I knew if I continued down the same path it was unsustainable. I knew something had to change. The benefits of having that ground cover far outweighed any expenses I’d incur.”



Trevor Gum inspecting saltbush regeneration

Progress toward goals and biggest successes

Looking forward ten years, Trevor would like to see those underperforming cropping paddocks become self sufficient in a rotational grazing system where they would support the number of sheep that he needs to carry. He would like to determine and settle on a stocking rate of say, 750 mated ewes that he can maintain from decile 3 years upwards. Having to change strategies as soon as a decile 4 or 5 year comes along is not an attractive proposition.



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To do that he needs to continue zoning off hills face areas, subdividing grazing paddocks and designating specific paddocks for cropping only. Trevor would like to get to the point of using no-till and no sheep in the cropping paddocks and grazing only the non-performing crop paddocks. “That way if we found that machinery ownership wasn’t practical we could find another way to manage the cropping. Machinery is too dear for my area of cropping and my quantity of grain.”

In the last four years the Gums have completed 10k of internal fencing. Trevor smiles when he mentions neighbors’ comments about his boundary fencing not looking as good as his internal dividers. “My sheep prefer the cover and feed in my paddocks now and tend not to go for a wander. They have feed and they are happy.”

Would he like to be further down the track? “We need to do about 25km of permanent fencing all up so we are only a third of the way there. From then on we will use hot wires to establish pastures we can strip graze as we require. That would be useful in a good year when you have trashed in barley or when you might want to take some grain off the top.”

The Gums are in the process of fencing 1200 acres on Wally’s Block into 8 paddocks. The design of the water system will provide the ability to cut that down to 16 paddocks. That might be further split with a hot wire in good years, which has more flexibility and is cheaper to set up.

Trevor rates one of his biggest successes as the change in grazing up on Wally’s block. “Since we have changed our practices we have had thick bluebush come back all over. It’s probably not the most desirable for feed but it is a great indicator that other species must also be getting a go. Also, there’s no water runoff because I have the ground cover now. Water equals more feed which equals more income!”

What’s more difficult but still happening?

Without a doubt, Trevor considers the time in fencing the most difficult aspect of the change. There is also a lot of work to be done on the water infrastructure in laying pipes and installing more troughs and better pumping systems to get water to the high points. He has been working with Brenton Diener from Solar Water Pumps to optimize the systems he will use. “We are in hilly country so we have to do some pumping. Windmills are fine but solar is better!”

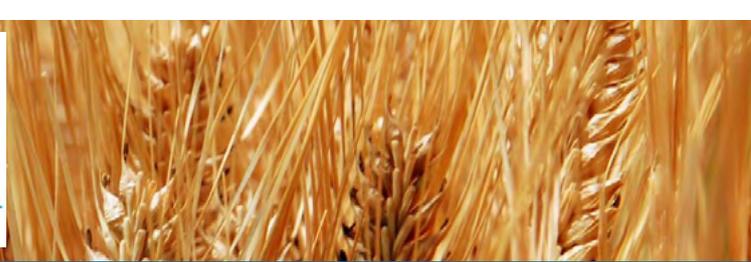
Pros and Cons of decision to change

Now that the farm is progressively being zoned and subdivided into land classes, the Gums are becoming more interested in the sheep side of the business and taking more land out of cropping to reduce potential risk. “Stock gives us a more stable income.”

A greater percentage of ground cover provides more feed and stock are healthier because of their varied diet.

“People tell me that it will be a lot simpler to manage when the system is up and running, we’re not there yet. We should have more time as stock become easier to move even though it must be done more frequently.

When asked about the negatives Trevor says, “time to set Ruth Robinson in paddock showing excellent ground cover



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everything up and expense but this is far outweighed by the benefits of having a sustainable system.”

How has it turned out financially?

The change is still in its early days and assessment is clouded somewhat by a couple of good seasons. The Gums have increased ewe numbers by 60-70% since the drought. Supplementary feeding is still occurring but at a much reduced level in order to keep the ewes in a 3-3.5 score condition.

“The only money coming in is from stock. Only two in the last ten years has cropping turned a profit. This system allows me to have more ewes.”

What would you do differently?

“If I could start again I would have allowed more time for setting up the system with my sheep and taken more time away from farming. I would have been more ruthless when taking out the poorer performing cropping paddocks. We should have taken them out earlier to be set up for this system instead of just the non-arable ones. That would have helped through the lighter years because I could have had more stock sooner.”

Critical success factors

“Careful planning for changes like this are crucial and it’s important to see it all as a whole package.”

“Getting fences in the right spot the first time with the help of aerial photographs and soil testing can save time and money. Don’t be afraid to ask others using similar systems for advice. Consultants such as Daniel Schuppan, livestock advisor for Landmark at Jamestown are important in assisting you to get stocking rates right and also to assess the plant available food in kg per ha.”

Trevor also acknowledges the generous assistance he has received from participation in UNFS (Upper North Farming Systems) projects funded by various agencies such as DAFF, DEWNR, NRM Board and Grain & Graze 2. This has provided technical and some financial resources for the Gums and other farmers to test out new ideas and practices.

Summary

“If I was still farming as I was 10-12 years ago it would see me in more debt and possibly with the bank managers running out of patience!”

Interestingly, Trevor talks about, “that warm fuzzy feeling” he gets when he goes out into those formerly bare paddocks and sees the type and variation of plants that have appeared. He also takes great pride in having his country in good condition and nice looking, calm stock that appear satisfied.

“The kids have been involved all the way through and are right behind the plan. They are keen to see the country looking the way it is now and understand why it is looking that way. That is so important to us because they can now see this system as a means of keeping the family farm in their name even if they don’t run it as a business themselves. They can see that the system will sustain itself in years to come even with a manager if needs be. If I take my business hat off, there is still a strong emotional tie to this place and these

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changes may mean we can keep it in the family into the future. I don't know how you would feel if you were the generation that banged the for sale sign on."

Grain and Graze 2 would like to acknowledge the assistance of Michael Wurst and Jodie Reseigh from Rural Solutions SA based at Jamestown for some of the information used this case study.

Would you like to see a You Tube video of Trevor Gum talking about some of the changes he has made on his property? Click here:

<http://youtu.be/XIB2KZHj0o>