

Perennials for “Dandaragan Organic Beef”

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David and Joan Cook of “Noondel”, Dandaragan, are Western Australia’s largest producers of certified organic beef. Their “Dandaragan Organic Beef” brand supplies grass fed organic beef year round to a select group of up-market butcher shops in Perth. They believe that perennial pastures are crucial to the success of their business and the health of their land.

“Noondel” comprises 2,900 hectares of rolling red gum country in and around Dandaragan.

The Cooks planted their first perennials in the spring of 2001 after David and son Daniel went to Queensland on an Evergreen Study Tour. It was a small start given so little was known, with three small trial plots sown. They were successful and the area sown has expanded every year since, with a total of 280 hectares. But this area will rapidly increase with a further 200 hectares being sown in 2007.

Boundaries, lighter soil types and finishing paddocks will be the priorities for even greater perennial pasture establishment over the next few years. They have observed that invasive weeds such as Patterson’s Curse and Doublegee are choked out by perennial grasses so planting them along boundary lines will restrict weed incursion from neighbouring farms. Lighter soil types give the fastest return on investment as the perennials grow best on these deep well drained soils and the existing annual pasture is relatively unproductive. The planting of perennials in their finishing paddocks will greatly assist the year round supply of quality beef. Tough seasonal conditionals restrict their ability to supply through the late autumn and early winter. With a more perennial feed base this will be much less of an issue.

David thinks the new perennial based grazing system could be up to twice as productive as the existing system, although this comes from a combination of factors, not just the perennials. Major changes to grazing management and soil management are also having big impacts.

Cell grazing is used with big mobs of cattle rotating through a large number of paddocks. David is aiming to have 20 paddocks available to each mob, with cattle only spending 2 to 4 days in each paddock at a time. He provides the pastures 40 days rest in winter when they are growing quickly and 80 days rest in summer when they are growing slowly or not at all. This gives the plants sufficient time to recover from grazing. Perennial paddocks may be rested for longer than 80 days in summer if it is extremely dry, and conversely, rested for less



Joan and David Cook

than 80 days if there is significant summer rain. The Cooks are considering increasing the number of paddocks per mob to 40 but this would involve moving stock daily in winter.

Portable water troughs on wheels have been built that move with the mob, towed behind a vehicle, reducing the water infrastructure requirements of cell grazing. Fencing is all low cost electric with 4’6” galvanised steel posts placed 20 m apart and one hot wire 900mm above ground level. Weaner cattle require an additional earth return wire located 700mm above ground level to keep them in.

Fertiliser is still applied but organic fertilisers such as Guano and Rock Phosphate and natural soil amendments such as Lime, Dolomite and Gypsum are used instead of Superphosphate. Trace elements are also applied.

Establishing perennial pastures without the use of herbicides might sound all but impossible, but David has developed a reliable way to control weeds prior to sowing that still fits with their organic principles. Offset discs are initially used to plough in the existing annual pasture, before a chain is dragged to level the paddock. Historically, David broadcast the seed from a fertiliser spreader before compacting the seedbed with a rock roller.

More recently an old combine has been converted to furrow sow perennial seed. This will replace the super spreader and rock roller and hopefully produce a much better germination. Large old fashioned scarifier points have been set up on a 28” spacing, each with a following press wheel. Steel plate has been welded to the top of each point to improve soil throw and ensure that a decent furrow is created.

With this new machine, David plans to halve his traditional sowing rate of 6 kg/ha to 3 kg/ha, knowing that the combination of furrow sowing and press wheels will have a big impact on establishment. The wide row spacing will allow operation at reasonably high speeds without worry of soil throwing from one furrow in to another.

David has narrowed his choice of perennial species down to three main species – Gatton Panic, Rhodes grass and Lucerne. He uses approximately a third of each in his seed mix. He says Gatton Panic is particularly suited to the deeper sandy soils while the Rhodes grass is more versatile and with its runners is great at filling in gaps in the pasture and providing ground cover. Lucerne is handy with its high feed quality and very deep roots. Chicory and Signal grass are also used but as more minor components of a mix.



Prolific perennial grass growth following a good start to the season. Photo 21 May 2005.

Blue lupins grow over much of “Noondel” and since the establishment of perennial pastures they are now considered a “friend not foe”. Their ability to fix large amounts of atmospheric nitrogen is vital to the productivity of the perennial grasses, and the dry residues are very useful livestock feed over summer. David also suspects they are very efficient at extracting P and K from the soil, which is handy in his organic system. When grown in conjunction with perennial grasses, the lupins never get too thick in spring (a common problem when on their own).

The Cooks noticed their cattle stopped scouring when they changed from a total annual pasture to a mixed annual / perennial pasture during winter in 2004. They did some feed testing and found that the annuals had excess levels of crude protein (25 to 35%) which probably caused the scouring.



Gatton Panic and Rhodes Grass still growing despite the dry conditions. Photo 23 November 2006.

The perennials had a more optimum crude protein level of 18%. They also found that the perennials had significantly higher levels of trace elements – twice as much cobalt and 3 times as much selenium as the annuals. They are convinced that perennials provide livestock with a more even plane of nutrition year round, which must benefit animal health and productivity.

The Cooks are quick to point out that there is also a whole host of environmental benefits of using perennial pastures. As David says “they eliminate erosion, recycle nutrients from deep in the soil, improve infiltration rate, and build-up soil organic matter. We will get as many perennials in the ground as soon as possible, and granted we will lose some production during the establishment phase, but we will soon make up for that”.



Gatton Panic still slowly growing in the middle of winter. Photo 13 July 2006.