

# Pasture Cropping

## The Farmer's view



**A Collection of Interviews**  
**By Kim Woods**



CARING  
FOR  
OUR  
COUNTRY



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Jacci Campbell

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Cam Barrett-Lennard

Murray Chapman

Bob and Marj Falconer

Russell Ellis

Bill Hill

Doug James

Kevin Mitchell

Belinda Steers

# Introduction

This book is the result of a series of interviews that Kim Woods conducted on behalf of the Gecko CLaN with the farmers who have been involved in the Pasture Cropping trials that we have conducted with Caring for Our Country grants from the Federal Government since 2008.

Pasture Cropping is a technique of sowing zero-till annual crops directly into living perennial pastures. Generally winter cereal crops are sown into summer-growing native perennial pastures. The pasture can be grazed up to the point of sowing and then the stock can be put back after harvest to graze the stubble and green perennial grasses. Using this technique cropping and grazing are combined into one land management system and each enterprise enhances the other both economically and environmentally.

This book summarises the experiences of six of our farmers who have hosted trials on their farms for the Broken Catchment Landcare Network (Gecko CLaN) to investigate the application of pasture cropping as a technique in our area.

We are pleased that so many farmers have found that the technique offers something to their farm businesses. It has also stimulated interest in the benefits of retaining and managing native grasses.

The Gecko CLaN would like to thank all who have contributed to the projects and acknowledge your participation in any of the events that we have organised. We are committed to finding solutions for farmers to improve their farm business and the health of the landscape.

Jacci Campbell  
Pasture Cropping Project Officer

## About the author

Kim's career started as a cadet journalist in Dubbo in 1983. Since then she has worked at the Narromine News, Murrumbidgee Irrigator and the Border Mail as Country Mail editor before becoming Regional journalist for The Weekly Times based at Albury from 1998 to 2012.

She is now a Director of Outcross Media based in Albury and offers professional journalism, photography, videography and website content management.

Her experience in rural reporting for 30 years meant that she was able to capture the farmer's experiences, particularly in relation to Pasture Cropping.



# Pasture Cropping shines light on productivity with lower inputs

April 22, 2013

Solving the riddle of using fewer inputs to increase on-farm productivity is on Cam Barrett-Lennard's bucket list.

The North East Victorian sheep producer is working to turn previously water logged paddocks into productive pasture, maintain year round ground cover, build top soil and increase biodiversity.

It's been a big ask in years of climate volatility but Cam has been prepared to be flexible and learn from his mistakes.

Cam and his wife Kathy had been moving away from herbicide and synthetic fertilisers in a bid to lower variable costs and increase sustainability when they discovered the philosophy of pasture cropping.

The technique uses zero-till to sow winter cereal crops into summer-growing native pastures to increase soil health, water use efficiency, weed control and nitrogen use.

They are now observing the regeneration of native grasses, including wallaby grass and microlaena, a build-up of organic carbon, increased root penetration and a change from a phalaris dominant system.

Cam and Kathy share-farm a total of 324ha at Violet Town, running a 900 spring and autumn lambing ewe flock.

Set in a 600mm rainfall zone, the undulating country is timbered with grey, white and red box trees, and has loam soils running to buckshot rises.

Cam and Kathy took on the property, Fairview, in 2005 and spent the drought re-fencing, creating internal laneways for stock movement, cleaning out surface dams and planting many native trees and shrubs as shelter-belts.

They bought a flock of Merino ewes with the property and joined them to Coopworth/East Friesian cross rams. The crossbred ewe progeny were then joined to Poll Dorset rams. The couple also bought Merino ewes joined to Border Leicester rams, retaining the ewe progeny and joining those to Poll Dorsets.

Western Australian bred Merino ewes were added and are now joined to Toland Poll



Cam Barrett-Lennard has turned to pasture cropping to help with climate variability.

Merino rams. The ewes are pregnancy scanned with the twin-bearers given access to better pasture resulting in 135-140 per cent lambs marked last year.

Cam and Kathy attended a pasture cropping workshop three years ago in an effort to reduce chemical use and increase enterprise sustainability.

"One year MAP and DAP were up around \$1300 a tonne which wasn't sustainable for us so we changed to Vicmill, a coal dust based fertilizer. It was tailored to suit individual paddocks according to soil tests," Cam said.

"Although I had been heading down that pasture cropping track, it took me 12 months to get my head around it.

"We had been using the brix test to gauge sugar levels in the pasture after applying the Vicmill fertilizer.

"The phosphorus level was right up on this place - in fact so much it needed neutralizing as a lot of the phosphorus was unavailable to plants." The couple also wanted more diversity in the phalaris dominant pastures, to control silver grass and erodium, increase the native perennials and encourage root penetration at depth.

They studied the techniques used by central NSW farmer, Colin Seis, a pioneer of pasture cropping.

Cam and Kathy also volunteered to be part of the Broken Catchment Landcare Network's pasture cropping trials.

Four trial plots of 2ha each were fenced off using electric tape, water troughs installed and weeds sprayed out. In autumn 2010, bimil oats were sown with a mix of red, wallaby and Queensland blue grasses, microlaena and Paspalum distans, with 150kg/ha of Vicmill organic fertilizer.

Cam used an International 511 20-row combine with a modified undercarriage and fitted with no-till harrows.

In spring 2010, the plots were sown to a summer crop of cow peas, lab lab and the native grasses.

The following year, the sowing mix was oats, millet, Gatton Panic, Premier Digit grass, Warrego grass, plantain, arrow leaf clover and lucerne.

Soil tests showed a pH of 4.3 in calcium chloride and organic carbon of 2.13-2.69 per cent across the plots.

Cows and calves equating to 450dse/ha were used to graze the plots from 2200kgDM/ha to 1200kgDM/ha. The plots were then rested from March to August.

Cam has been impressed with the performance of arrowleaf clover.

"I have been working out how to get the bulk down without spraying or burning. Mulching seems to work well and perhaps I need to go to wider spacings on the seeder," he said.

Cam is also exploring the use of stubble digesters to break down the bulk before sowing.

Pasture cropping workshops have given him the skills to identify native pastures.

This year, Cam is using the balance of the pasture cropping trial site to run his own lime trials.

"I am treating the rest of the farm the same as the trial plots but it's important to remain liquid while doing this," he said.

"There is a lot to learn and a fair few failures along the way but in order to make a profit on the farm we must improve productivity and cut costs."

Cam reckons the lower input regime helps to manage risk.

"Having both winter and summer active grasses means if there is a failed season, we can keep bulking up feed," he said.

"The management is more difficult with pasture cropping – you can't simply bomb the paddock out, put in the crop and harvest it.

"But, we are not banking on grain as an income – it's just a bonus."



Cam Barrett-Lennard is hosting pasture cropping trials on his farm.



The farm has been re-fenced with central laneways and shelter belts.



They run 100 Murray Grey breeders, turning off weaners at 10-11 months of age through Wangaratta saleyards, and selling replacement females to re-stockers.

The property is also home to the Undurra Arabian stud, running 26 horses including 10 broodmares and three stallions.

Specialising in Russian, Polish and Egyptian genetics, the stud has sold endurance, performance and breeding horses around the world.

In 2008, the couple had listened to central NSW farmer and pasture cropping pioneer

## Making sustainable changes at little expense



Cam Barrett-Lennard has planted thousands of native trees and shrubs in shelter belts and wildlife corridors.

May 14, 2013

Bob and Marj Falconer believe they have found a key to regenerating pastures and creating more fodder at little expense.

The North East Victorian farmers turned to pasture cropping five years ago and haven't looked back since.

Pasture cropping involves sowing zero-till annual crops directly into living perennial pastures.

The couple has found the cereal crops stimulate perennial native grasses over the summer-autumn period when paddock feed is traditionally lacking.

Bob and Marj farm 202ha in a 700mm rainfall zone at Meadow Creek, east of Wangaratta.

Colin Seis talk on the concept.

They were keen to manage their farm holistically, with minimal chemical use and soil disturbance.

"I came away thinking this is a fantastic idea and managed to get in a pasture cropping trial of our own in 2009," Bob said.

He inoculated Saia black oats with a biological mix, aerated the compacted pasture with a Wallace plough and direct drilled the crop.

"The oat crop was a huge success reaching fence height and supplying us with four grazings to December," Marj said.

"To our astonishment, there was a variety of perennials which we hadn't seen in the paddock for years – we had produced a feed wedge and improved the pasture at little expense." The Falconers have kept meticulous records and photographs of their crops and pastures each year since.



**Marj and Bob Falconer are hosting pasture cropping trials for the Gecko ClaN Catchment Landcare Network.**

With the property located in a high rainfall zone and away from traditional cropping areas, the documentation has proven invaluable when reporting to the Gecko ClaN Catchment Landcare Network.

Bob and Marj have hosted pasture cropping trials for the network since 2010, and now use the concept across their whole farm enterprise.

The horses and cattle are rotationally grazed, helping with parasite control and to increase pasture utilization.

The Falconers have stopped spreading single super and lime, turning to foliar applications of kelp, molasses, worm juice, fulvic acid and compost tea.

They hand broadcast red, kangaroo, wallaby, blue, warrego, tall wheat and Queensland silky blue grass, lucerne and cocksfoot.

A colony of 3000 dung beetles has been released into the pastures, and trees planted for biodiversity.

Organic carbon has increased; soils are loose and aggregated, absorbing every drop of rain.

Bob and Marj have found pasture cropping to be ideal during drought or dry seasons but the wet years of 2010-11 proved difficult sowing cereal crops into already germinated competitive plants.

"We are finding changes in pasture composition two or three years after sowing – phalaris, perennial ryegrass, white clover and warrego grass have appeared," Marj said.

"Unless an oat plant is given a chance, it won't compete."

Marj said pasture cropping required a different mindset when growing cereals.

"We are not interested in harvesting the crop – our main interest is the regenerative and fodder angle," she said.

"Pasture cropping has been a massive learning curve for us and enabled us to make huge changes within the enterprise.

"We have been able to leap frog off a lot of the techniques and adapt them to our program of aeration and minimal soil disturbance.' Rather than investing in new machinery Bob has preferred to use what's at hand. He has a Wallace plough and 14 run Connor-Shea disc linkage seeder.

"The thing about pasture cropping is it can be done at little expense," Bob said.

He does comparison trials using the scarifier and aerator – documenting as he goes.

"Our heavy soils compact quickly, particularly with horses, so it is important to increase soil structure," he said.

"We don't have dominant native pastures – annual plants come up on the first sign of rain. "Since giving up lime and super we are getting real bang for our buck with so much plant matter."

Marj said "neat paddocks" were not part of the pasture cropping landscape.

"We love the biodiversity and if we see capeweed appear, then that is converting nitrogen into a more usable form for higher order plants," she said.

"We are finding plants now have high brix (sugar) levels, resulting in no red legged earth mite.

"Pasture cropping is more suited to drier conditions but it is a tool you can use whatever the situation.

"It is about encouraging biodiversity and perennality, and growing a huge biomass of feed.



**Marj and Bob Falconer are encouraging biodiversity and perennality in their pastures through pasture cropping.**



Young Arabians enjoy their freedom at the Undurra Stud, Meadow Creek.

Russell Ellis is the first to admit he is no purist when it comes to growing native pastures on his North East farm.

But, he has found them to be a useful tool in his search to lower production costs and obtain better value out of every drop of rain.

A fourth generation farmer, Russell and his wife Helen own and lease 1450ha and agist stock on another 200ha at Chesney Vale, near Benalla.

They farm in partnership with son Andrew and daughter-in-law Ally.

During the 1990s, the family was pushing the boundaries with high inputs of phosphorus in an effort to increase dry matter production.

"The feed would run out in the autumn and when the drought came I got to wondering how to manage more economically without a lot of failures, debt and the minimal buying of feed," Russell said.

He also wanted to improve year round groundcover, water holding capacity in the soil and organic carbon.

"With climate variability, I wanted plants with the ability to grow on any rainfall at any time of the year," Russell said.

"Our pasture was mainly ryegrass and clover with a silver grass problem."

Set in a 550mm rainfall zone, the property

## No bragging rights but plenty of sustainability



Bob Falconer has trialled a scarifier and aerator in establishing this crop of black oats

ranges from granite sand to sandy loams and light clay.

The family run 3500 ewes, including 1800 Bundilla blood Merinos joined to Merino rams, 700 Merinos to Poll Dorset rams, 800 Merinos to Border Leicester and 350 crossbred ewes to Poll Dorset rams.

The enterprise mix also includes 30 beef breeders and 220ha of oats and wheat.

Russell and Helen have always had a healthy respect for the environment, planting trees and establishing stock containment areas to prevent soil erosion during dry seasons.

In 2007, they heard central NSW farmer Colin Seis speak on pasture cropping – a technique of sowing annual crops directly into summer growing perennial pasture without conventional cultivation.





Pasture cropping has helped Russell Ellis identify native grasses in his paddocks.

The Ellis family agreed to take part in pasture cropping trials co-ordinated by the Broken Catchment Landcare Network (Gecko Clan), and a sequestering carbon trial.

Russell modified an International 511 20-run combine on 17.5cm row spacings with a John's undercarriage to a 14-run on 30cm spacings with high-pressure breakout tynes.

Now pasture cropping across the whole farm, he has noticed warrego, windmill, wallaby, spear, red, blue grasses, and microlaena establishment.

Summer rain allows the Ellis family to rotationally graze their sheep on the actively growing native grasses.

When it comes to pasture, Russell prefers a mix of annual ryegrass and clovers with native perennials.

"We are not against phalaris, cocksfoot or lucerne in the paddock as long as they are part of a diverse pasture mix," he said.

"We do rotationally graze all the paddocks but not in the purist sense of all stock being run as a single mob."

Russell and Helen believe high input systems to be uneconomic and unsustainable in the long term.

"We aim to run the farm at a level that returns a reasonable profit rather than chasing that very last bit," Russell said.

"Most farmers are driving for higher production whereas we are attempting to set up a more balanced system between inputs and results."

Russell conceded some farmers would find it difficult to break away from the mindset of having a tidy crop under pasture cropping techniques.

"With pasture cropping, there are no bragging rights at the pub on how good the crop looks," he said

"We are running stock at 6 DSE/ha and harvesting grain off our crops so pure grain yield doesn't enter the equation."

With no template to follow, Russell admitted pasture cropping could be a lonely journey unless networking with like-minded people.

"Even when sowing native grasses, some might not come up for two to three years so it is not instantly rewarding," he said.

"It is only because we are predominantly graziers that pasture cropping works for us.

"To harvest grain is a bonus but we are all about encouraging good, thick, healthy grasslands."

Russell believes pasture cropping can be profitable but found the transition stage challenging.

"During the build up phase it is sometimes difficult to keep stock numbers high enough But I firmly believe once pastures are a better mix of perennials and annuals, it will be profitable," he said.

Russell said pasture cropping meant a paradigm shift within the farm enterprise.

"We are not so much talking about native grasses but a functioning grassland," he said.



Russell Ellis uses Merino sheep to rotationally graze perennial pastures.



Russell Ellis has found curly windmill grass regenerating.



Warrego grass grows on summer rainfall.

## Pasture Cropping allows climate adaptability

April 26, 2013

When it comes to understanding climate variability, Doug James has a pretty good handle on the issue.

The fourth generation mixed farmer from Bungeet, in North East Victoria, has ongoing rainfall records begun by his ancestors in 1881. Computer technology has allowed the records to be graphed, painting a picture of random,

unreliable and unpredictable rainfall over the last 132 years.

Although the driest year occurred this century in 2004 with just 200mm falling, the wettest year was 1889 when more than 1000mm was received.

Each successive generation of the James family have learnt to adapt and cope with changing weather patterns.

During the 1990s, cropping was an important part of Doug's enterprise, much like the rest of the district.



But the long drought of the past decade resulted in an enterprise shift. The cropping component now maintains the sheep enterprise, resulting in lower input costs and reduced risk.

Today, Doug and wife Jan run the 1300ha property "View Bank" in partnership with son Steve and wife Mardi.

Set in a 525mm rainfall zone, the undulating country runs from granite sand to gravel rises. The pasture base is predominately ryegrass and clover, with some perennials including native spear, red and wallaby grass.

"We are trying to get more scattered lucerne plants in the mix, but any perennial is a bonus, even plants normally classed as weeds like couch grass and sorrel," Doug said.

The farm carries 2200 first-cross ewes, joined to Poll Dorset rams, and turning off 24kg (carcass weight) lambs direct to JBS Australia.

In his younger years, Doug was disturbed by the erosion caused by rain after ploughing.

"There had already been much damage done by rabbit plagues, moulboard ploughing and lack of ground cover," he said



Doug James inspects grazing triticale, lucerne and clover sown using pasture cropping techniques.

With no such thing as direct drill seeders or chemical weed control, Doug found the concept of minimum tillage and direct drilling appealing.

He pulled tynes off and modified machinery, tried cold burns and heavy grazing with wethers.

"With the technical advances of selective herbicides and improving machinery, the cropping process has been revolutionized," Doug said.

The family now use a 40-row John Shearer trash drill converted to 28 rows with narrow knife points on 25cm spacings.

"We started sowing a lot of ryegrass in the 1970s, before that the farm was covered in pure erodium," Doug said.'

He and Jan have planted thousands of trees along creek lines and into shelterbelts and wildlife corridors to increase biodiversity.

As a Warby Ranges Landcare Group member, Doug was introduced to the concept of Pasture Cropping about five years ago by central NSW farmer Colin Seis.

"I went on a bus trip to Col's place – he was a real down to earth bloke and I remember thinking what he said made a lot of sense. He spoke about increasing perennality to use the rain when it fell," Doug said.

He found the conversion to pasture cropping easy as it melded with his own philosophy and methods.

This year, the family has sown 300ha of matika oats, tahara and tobruk triticale into paddocks with native and introduced perennials.

"We are more environmentally aware and aim to achieve 100 per cent ground cover, retain stubbles and use zero-till machinery," Steve said.

"With good ground cover, there is no heliotrope or melons over summer.

We have gone away from using Roundup as a knockdown, although sometimes it is still needed depending on what species we are wanting to control.

"We also use Sprayseed or Gramoxone and sow straight into the stubble or pasture paddock.'

The family has volunteered to host pasture cropping and sequestering carbon trials to stay

abreast of the latest ideas and experimentation.

The pasture cropping trial, undertaken in partnership with the Broken Catchment Landcare Network, was sown down to oats followed by triticale with a mix of perennial grasses.

"We have the small seed box on the combine going all the time," Steve said.

"We are always spreading a mix of grass seeds while we are sowing the cereals.

"We can now graze and harvest the cereals, and then graze the native grasses over summer.

"The grazing cereal component is a big part of keeping the enterprise going while the natives convert summer rainfall into effective feed for the sheep."

Steve said the yield penalty from grazing resulted in lower financial returns from the crops taken through to harvest.

"But, we take a long term view as pasture cropping fills the autumn-winter feed, provides

better value summer grazing, and improves soil structure and fertility," he said.

Doug has observed the regeneration of windmill, red, spear and wallaby grass.

He also likes lucerne in the mix and is aiming to further increase the species diversity

"Like a lot of things in life, to get the best out of the farm it needs a bit of time and tlc – it's not only humans need a rest time, nature does as well," he said.



Steve James with the trash drill converted to 28 rows with narrow knife points on 25cm spacing



Doug James found pasture cropping melded with his own philosophy

Kevin out to make every c

May 7, 2013

Kevin Mitchell is the first to admit he is an "old cropper from way back."

Born and bred in the Victorian Mallee, Kevin has spent many hours on a tractor burning diesel sowing winter and summer crops.

But, while watching a home video shot in 1984, Kevin was struck by how his own philosophy had evolved when it came to soil health.

"The video was of my son driving a tractor, and we were belting the heck out of the soil," he said.



"We were working the country up a lot with cultivators and ploughs – it is not a good look these days."

Kevin and his wife Pat farm the 380ha "Muttaborra South" at Devenish, in North East Victoria, in a 525mm rainfall zone.

The Mitchells run 1100 Primeline Maternal composite ewes joined to Primeline rams.

Around one quarter of maiden ewes are retained as replacements while the rest are sold over the hooks at 22-26kg carcass weight. Through the 1990s their enterprise mix was 60 per cent cropping, with the balance finishing trade lambs.

The couple worked 243ha of irrigated country until the decommissioning of nearby Lake Mokoan forced a rationalisation of the farm enterprise.

"We still had irrigation when the drought settled in and were one of the most secure farms in Victoria," Kevin said.

"Once the irrigation was shut down, I sold off my water allocation, reduced the sheep flock from 1800 to 1100 crossbred ewes, switched from fattening to breeding, and moved to a dryland cropping scenario."

Stock containment areas were used to protect the balance of the farm from soil erosion during the drought.

Kevin was keen to increase pasture diversity, especially perennials, for the sheep while achieving a cereal crop for grazing or grain.

"For some years I had been keeping a trial paddock aside with no chemical application and had been monitoring the biological results," Kevin said.



Healthy nodulation on lab lab plants taken from the pasture cropping trial at the Mitchell's farm

"I attended a Grazing for Profit and environmental management courses to make better use of the rainfall.

"At the time we were direct drilling and often burning a bit too – now we are trying to keep that straw on as ground cover."

Kevin and Pat's philosophy has now evolved to incorporate pasture cropping techniques.

Pasture cropping involves sowing zero-till annual crops directly into living perennial pastures.

They have hosted a pasture cropping trial co-ordinated by the Gecko CLaN Catchment Landcare Network since 2010.

Winter trial crops have included matika oats and wedgetail wheat undersown with plantain, chicory, lucerne and paspalidium distans grass. Summer crops have been shirrohie millet, lab lab and cowpeas.

Kevin has used a John's undercarriage to modify an International 511 with knife points on 23cm spacings, K-Line coulters and press wheels.

He has found it difficult to establish native perennials and clover so prefers to use lucerne, millet and lab lab as a high quality pasture for finishing lambs.

Even so, he often throws extra species in the mix at sowing to see what survives, with warrego and prairie grass showing promise.

Kevin was impressed with the ability of millet and warrego grass to maximize summer rainfall.

“Millet doesn’t cost a lot to grow, we had good feed off it and were able to harvest for seed,” he said.

“Our soil pH is good as I have always applied lime to grow lucerne but the organic carbon is low.

“Pasture cropping is an evolving thing with us – we are not putting a lot of money upfront on chemicals and we can hedge our bets on enhancing the pasture.

“I do rotationally graze the stock but not religiously.”

Kevin considers pasture cropping to be ideal for lowering inputs and reducing risk.

“It is a good way to go, particularly if you are on the fringe of cropping country and are trying to improve pastures,” he said.

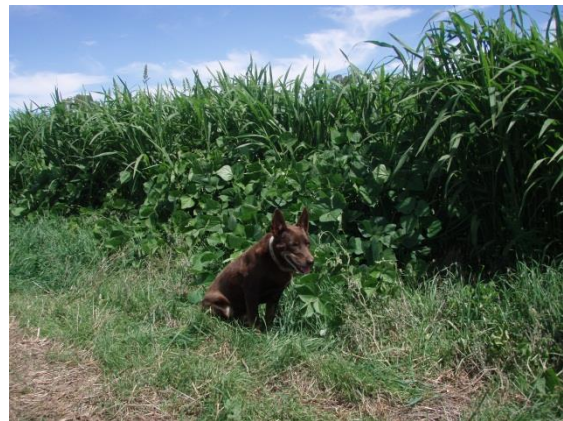


**A mix of lucerne, plantain and lab lab in the pasture cropping trial at the Mitchell's farm.**



**Prairie grass in the Mitchell's trial paddock**

**Photos Kevin Mitchell**



**The Mitchell's working dog sits next to a plot Of lab lab and millet**



**A mix of summer growing perennials.**



# Low input pastures result in bottom line profit

March 27, 2013

Flexibility, optimal pasture use, lower inputs and less risk by pasture cropping have added up to an improved bottom line for Belinda Steers.

As a partner in the family farm, Belinda has played an integral role in moving the enterprise from intensive cropping and wool to 100 per cent livestock.

Over the past few years, the Steers family has incorporated pasture cropping techniques in their switch to a more sustainable system.

Pasture Cropping uses zero-till to sow winter cereal crops into summer-growing native pastures to increase soil health, water use efficiency, weed control and nitrogen use.

Belinda and partner Mark Goodman help her parents, Robin and Carolyn Steers, run the 607ha "Broxbourne Park" at Avenel, in North East Victoria.

Set in a 570 mm rainfall zone, the country is mainly loam soils and carries 1000 commercial Dorper ewes.

For a decade, the family focused on intensively cropping cereal and oilseed crops across 1000ha using conventional methods.

Alarm bells rang for Belinda when she couldn't see a break-even point in the next season's cropping budget.

She had heard about pasture cropping and considered it a tool to maximize risk management in the farm business.

"I could see the picture wouldn't be perfect with weeds poking out here and there, but it was better than spending up to \$15/ha spraying chemicals," Belinda said.

Phalaris had disappeared from pastures infested with couch, silver and barley grasses.

There was a problem filling the feed gap until the autumn break which traditionally signalled an explosion in ryegrass and clover.

Belinda and Mark attended a Pasture Cropping course in 2010 and agreed to take part in the Broken Catchment Landcare Network (Gecko ClaN) pasture cropping trials.

They divided a paddock into four plots of 2ha each, with one plot kept as the control.

In autumn 2010, plots two and three were sown to oats and a mix of red grass, wallaby



Belinda Steers inspects native species regenerating within the trial plots.

grass, Queensland blue grass, microlaena and Paspalidium distans.

The following spring, plots three and four were sown to summer crops of cow peas, lab lab and C4 native grasses. In autumn 2011, self-sown oats were allowed to generate in plot two while an oats-seed mix was sown into plot three and four.

The seed mix contained Gatton Panic, Premier digit grass, Warrego grass, plantain, arrow leaf clover and lucerne.

For the past two years, Mark and Belinda have continued the mix of echidna oats and C4 natives.

They time-control grazed each plot using 260 joined Dorper ewes down to a pasture height of 5-6cm followed by a 60 day rest period.

Although Avenel is a traditional fine wool Merino district, the cleanskin Dorper breed has been making inroads on the back of a swing to cropping and prime lambs, and a shearer shortage.

A partner in the data collection business

Exact Livestock, Belinda was working in

Western Australia a decade ago when she

came across Dorpers as an emerging breed.

With Dorpers able to fatten on low protein pasture, there is no need to sow high input

pastures to keep the enterprise sustainable and profitable.

Surplus ewe lambs are sold to re-stockers or over the hooks while the wether lambs are sold direct to processors at 16-22kg carcass weight.

“Dorpers are highly fertile – 42 days after lambing the ewes will have another six week joining so they lamb every 13 months,” Belinda said.

Last year lambing percentages across the entire ewe flock were 120-130.

During the pasture trials, Belinda and Mark were impressed by the bulk of feed provided over summer by Gatton panic.

Mark used an Agropow disc seeder to sow Gatton panic with oats and lupins in October, 2010.

Summer rain resulted in a huge feed bank over January-February 2011.

The Gatton panic germinated again on rain last December but a lack of February rain resulted in it being grazed out.

Belinda has noticed the native red and umbrella grass, microlaena and phalaris beginning to regenerate.

She has learnt to identify native grasses and to estimate pasture quality and quantity.

Increased ground cover and improved soil biology are also high on her list.

Increased ground cover and improved soil biology are also high on her list.

“We are aiming to build the organic carbon to improve water infiltration,” Belinda said.

Pasture cropping works – the problem is the lack of summer rainfall. Given the opportunity when it does rain the stock are getting something to eat rather than Bathurst burrs.”



Belinda Steers with the seed drill used to sow the pasture cropping trials on Broxbourne Park.

The family is now trialling a low rainfall perennial mix on creek country to control the couch grass and scotch thistles.

“The farm is now making money in a way where Mum and Dad can do the work with us helping on the sidelines, and with a lot less stress involved,” Belinda said.

“Come harvest time each year, Dad says he doesn’t miss that million dollar roll of the dice.”



Belinda has been delighted with Gatton Panic  
Photo Belinda Steers



Belinda Steers and daughter Mae  
Dorper ewes and



Palatable green feed with ev



May 21, 2013

For Tony Burke, the proof of the pudding is under his feet.

The North East sheep and grain producer has reduced his reliance on chemicals, and moved away from the traditional mindset of continuous cropping.

Tony has turned to using deep rooting perennials, 100 per cent ground cover and strategic grazing to improve soil structure and water holding capacity.

"I can feel it when I walk across the paddocks – the soil is now soft – it's not like concrete anymore," he said.

Tony and his wife Trish farm the 405ha property, "Limerick" at Lake Rowan, south of Yarrawonga.

The couple has one basic aim – to grow palatable green feed every time it rains.

During the tough years of the drought, the Burkes reduced their fertiliser rates, minimised chemical application and did not re-sow pasture.

By sowing cereal crops into degraded pastures, they unknowingly had stumbled upon the technique of pasture cropping.

But, the path to adopting the philosophy has not been easy, with silver and barley grass infestations, mice and locust plagues, trash handling problems, and unseasonably wet years. Floodwater has reached their house 9 times in the past two years.

Tony conceded above average summer rainfall in 2010-2012 made pasture cropping difficult.

Floodwater has reached their house nine times in the past two years

"After the floods, the soil structure collapsed and sealed up. We are trying to get deep rooting plants - phalaris and lucerne – in the mix with clover and annual ryegrass to re-establish," he said

Lucerne and clover are being used to boost soil nitrogen, while lime is being applied to lift calcium levels and increase the surface soil pH.

Tony has re-fenced the farm with 30m internal laneways.



**Tony Burke in a pasture with a diverse mix of native and introduced perennials.**

They are wide enough to spray, crop and turn a B double truck in, and act as holding paddocks at shearing," he said.

He hand broadcasts seed harvested from native perennials on the roadsides and remnant bush areas.

A wide range of native species are slowly recruiting across the paddocks.

The family has planted 8000 trees by hand into shelterbelts, and have plans for more on the southern and western fence lines.

Plans are also on the drawing board to split an 80ha paddock into 10ha cells, planted with saltbush and edible shrubs at the centre to supplement the animal's diet and provide shelter.

Always open to new ideas, the Burkes have hosted pasture cropping trials since 2010 for the Gecko Clan Catchment Landcare Network. Tony and Trish run 700 Coopworth maternal composite ewes, with a portion joined to White Suffolks for terminal progeny.

The flock enjoys high fertility, with ewes pregnancy scanning at 180 per cent and marking 148 per cent of lambs last year.

Ewes are electronically tagged so they can be ranked on in-flock productivity.

In recent years, lambs have been finished in an opportunity feedlot to 18-21kg carcass weight and monitored for feedlot performance.

“Livestock are a key component of a pasture cropping system,” Tony said. He has observed native grasses thickening in a 20ha area of remnant bush after several years of strategic grazing.

This year, 137ha of wheat, 40ha of grazing barley, and 68ha of oats have been sown.

“The saia black oats are vigorous and produce dry matter to get the bulk on the paddock,” Tony said.

“We have found the more stubble on the paddock, the better the moisture retention – 100 per cent ground cover is vital to prevent weeds colonizing.”

Tony uses a John Shearer 28 row [modified to 24] on a 22.5 cm row spacing, with a small seeds box and second hand press wheels added. “If we do end up receiving summer rain, I can put in an opportunistic and cheap crop of sorghum or millet for fodder,” he said. The ultimate goal is to be less reliant on chemicals but Tony is the first to admit it is not all plain sailing.

Fertiliser rates jumped from 40 to 90kg/ha of MAP at sowing this year to help emerging crops.

“I’m using biological foliar applications and want to go that way, but have come to the realization that I have to go back to using some chemicals to get weed control and clean up paddocks,” he said.

“I love working with my stock but unfortunately I am back on the tractor.”



**Tony Burke has set aside two areas of remnant bush on his farm.**



**Tony Burke in a pasture with a diverse mix of native and introduced perennials.**



**A flock of Coopworth maternal composite ewes are used to strategically graze pastures.**





**Wallaby grass is regenerating on View Bank.**



**Arrowleaf clover has been used in a perennial pasture mix.**



**A young oat plant displays a healthy collection of soil biology.**



**Red legged grass grows on summer moisture.**



**Tony Burke is fitting a small seeds box and press wheels to his seed drill.**