



# Perennials offer security in mixed farming system

**A**s far as diversity goes, Tasmania is renowned for its mixed farming systems. Richard and Emily Gardner personify modern Tasmanian farmers with an enterprise mix that includes sheep, irrigated poppies, irrigated and dryland winter cereals and grass seed crops.

Throw into the bag an assorted range of soil types and a highly variable climate and you've got a management challenge that requires a delicate balance of a strong operations plan and timely decision making.

For Richard and Emily, a carefully chosen mix of perennial pastures offers a resilient and productive feed source that complements the livestock and cropping enterprises on their 2600 ha mixed farming property.

## Diverse property

"The reasons Tasmanian farms can sustain diverse farming systems are the variable seasons and country – our properties are diverse by nature," Richard said.

"On *Annandale* we have native run country, with shallow ironstone soils that we largely manage for conservation values, through to fertile country ideal for livestock, dryland and irrigated cropping, including poppy production.

However, our systems haven't always been that diverse – the decline in returns from sheep forced us to look harder at other options, such as irrigated cropping.

The benefits from this process are manifold – our risk is spread across multiple enterprises and the returns from irrigation have allowed

## key points

- Diverse enterprises including livestock, dryland and irrigated cropping (including poppies) give greater flexibility and less exposure to risk.
- Choosing pasture species has required balancing feed quality, palatability and drought resistance.
- Perennial pastures and rotational grazing have enabled about 25% of the property to be taken out of production and managed for conservation.

## farm info.

**Case study:** Richard and Emily Gardner

**Location:** Tunbridge, Tasmania

**Property size:** 2600 ha

**Mean annual rainfall:** 465 mm

**Soils:** Highly variable shallow duplex soils – sands to heavy clays

**Enterprises:** Mixed farming system – sheep, irrigated and dryland cropping



*In Richard Gardner's (pictured above in a cocksfoot paddock grown for pasture seed production) diverse mixed farming operation, a mix of resilient perennial pastures offers security across variable soil types and seasons. INSET: While drought tolerance is a key species selection criteria, managing feed quality during a bountiful season is a challenge – particularly when combining pasture seed production with grazing. (Photos: Catriona Nicholls)*

us to increase our ability to manage our native areas sustainably.

We have moved from set stocked wool production on our native country to managing most of this country for conservation values under a management covenant (25% of the whole property is managed for conservation outcomes).

When sheep were our major focus, every blade of grass across the property was vitally important, forcing us to extensively graze our native country.

We now graze very little of our native country and our perennial pastures are the backbone of our livestock operation.

On the flip-side, enterprise diversity has meant juggling multiple balls and timeliness of operations can suffer.

## Shift in focus

We've had to learn to be in a different business – we've grown up in conservatively managed dryland systems, where labour efficiency is paramount.

On a recent irrigation tour of northern New South Wales and southern Queensland, one of things that struck me was the number of farmers who are focused on a single enterprise across their entire farm – cotton for example – and because of this focus, they are really efficient.

At the end of the day our systems have greater variability and finding and managing the right mix will provide the balance between risk management and returns.

While irrigated cropping can provide lucrative returns, it is still a high-risk venture



and the livestock provide a long-term risk management tool in their own right.

However, the formula of keeping it simple within each enterprise is important and our livestock enterprise is focussed on Merinos, breeding for a balance of wool and meat production.

Some of our contemporaries have gotten out of Merinos and jumped into breeding for meat production – but in this environment they will struggle; it's wool growing country.

We toyed around with incorporating a meat breed into the mix, but the benchmarks show that the dual-purpose Merino flock will provide the risk management we need while yielding a solid return.

The shift has been to move from a wool-focused breeding index to one that incorporates a stronger focus on bodyweight.

### Place for perennials

As with any livestock system, the pastures are the backbone and we have developed a mix of species that offers year-round feed production (in conjunction with our crop stubbles and dual-purpose cereals), feed quality, palatability and drought resistance.

While perennial ryegrass arguably outperforms many species in terms of feed quality and palatability, it is not ideal where you have pasture grubs and highly variable seasons – it's hard to match production to stocking rates. We have the right combination of season and stocking rate in about three years in 10.

Although it is relatively low-cost and easy to establish, it outcompetes companion species if grown in a mix and disappears when things get tough – leaving nothing.

In saying that, it still plays a role in our system. We use ryegrass as a biennial pasture break in a two-year rotation with our poppies and where we have sub-optimal spring sowing conditions for our other pasture species, we can follow up with ryegrass during autumn for lower cost and risk.

In terms of resilient pasture species that will persist across variable seasons, we have had to look elsewhere.

### Lesson from the drought

Drought has taught us a lot about managing pasture – conserving important pastures through sacrifice paddocks and drought lots. It highlighted the benefits of our phalaris and lucerne as resilient, drought-tolerant species.

From a drought-tolerance perspective, we could run a phalaris-dominant system, but during the past couple of wetter seasons the challenge has been managing feed quality. Phalaris is great, but managing growth during a big season is difficult.

Traditional cocksfoot varieties have been drought tolerant, easier to manage in terms of feed quality, but have had palatability issues.

We have been growing Uplands cocksfoot for four years for seed production and it remains drought tolerant, but is much improved in terms of palatability.

Because we are rotating sheep from pasture species to pasture species, changes in palatability can have quite an impact, particularly on young sheep. The higher palatability of Uplands means the sheep adjust more quickly.

We maintain single-species swards – each species has its own management

requirements and it is easy to lose a species after a couple of years in a mixed pasture.

Lucerne is a prime example – it can be difficult to establish, particularly in a pasture mix and is not suited to all soil types.

### Management challenges

It isn't that easy to manage pastures in this part of the world, because of the variability, because of the topsoils and the nature of having diverse farming systems.

Management of our pastures is probably not at the optimum as so much of it revolves around the cropping enterprises.

Pasture establishment also can be very challenging because of the risk of a dry autumn so we have moved to a spring sowing for establishing cocksfoot and phalaris.

The species mix we have means we now have the dry seasons under control, but it is the good seasons that are challenging in terms of eating the pasture effectively and controlling the dry feed – we are seeing that now.

The other issue is that because we grow pasture crops for seed, we always have dry material on top, so feed quality and grubs are a bigger challenge – which we hadn't anticipated.

Farming is always challenging, but developing a complementary mix of enterprises and finding the best pastures and crops to support those enterprises certainly helps to achieve a productive, profitable and sustainable balance. ↓

### contact

- Richard Gardner, Annandale  
M: 0419 374 511  
E: r.gardner@bigpond.com

### By Catriona Nicholls, Sheep Connect Tasmania

- As Richard has identified in his own business, a spread of enterprises provides multiple benefits, but also comes with its own set of challenges.

Many producers in mixed farming systems face the same challenges and question the role of perennial pastures in such a system.

The solution is two-fold – one relates to the management of each enterprise and the other to the structure within each enterprise.

To manage the former, Richard has recently chosen to bring additional resources into the business to ensure his pastures and livestock get the attention they deserve to drive sustainable returns on investment. By bringing specific expertise in to oversee the management

and implementation of grazing and livestock, Richard aims to be able to focus on other parts of his business, while optimising the performance of his livestock enterprise.

The selection of perennial species within the farming system also aligns with the principles of right plant, right place, right purpose.

Perennial ryegrass is used in conjunction with a cropping rotation; it is winter-active, and along with dual-purpose wheat, provides quality feed during a period where the other pastures are relatively dormant. Due to the seasonal impacts, perennial ryegrass is a short-term pasture option. It fits in well as a rotational break for poppies.

Lucerne, phalaris and cocksfoot provide drought-tolerant options that fit well

across varying aspects of Annandale's landscape. Lucerne is more suited to the deeper, more fertile soils, while phalaris and cocksfoot persist in shallower, less fertile soils. All three pastures provide feed during summer and will respond to late summer rainfall, extending the grazing season.

- Catriona Nicholls works as a project coordinator for the AWI-funded Sheep Connect Tasmania program.

### contact

- Catriona Nicholls  
M: 0427 571 199  
E: cat.nicholls@utas.edu.au