Perennials turn summer rain into valuable feed

hefty supplementary feed bill and below par lamb and weaner survival and performance prompted *Mokanger* manager Shane Arnold to make some pasture changes. He needed to fill the summer feed gap with a high protein and high energy diet for weaners, and the combination of lucerne, chicory and plantain, seemed to fit the bill.

In the beginning

"When I took over the management of *Mokanger* during 2003, the pastures were predominantly phalaris and sub-clover. About 15% of the pastures were annuals, which had erosion issues during the drought," Shane said.

"There was also about 200 hectares of river flood plain country, which inundates for some months during winter each year. This unimproved area has traditionally been used as sacrifice paddocks during the summer months, to rest the phalaris paddocks.

This winter-dominant pasture base provided limited, high-quality summer feed options to support weaners from the 8000-head, selfreplacing ewe enterprise, run in addition to 6500 wethers.

We had nothing to take advantage of the relatively reliable summer rainfall of 75 mm average.

Lambing started during mid-August to ensure the lambs could be weaned onto green feed, but this meant the lambing ewes were often exposed to poor weather.

The enterprise also had a very high supplementary feed bill for weaners and ewes during summer and autumn, exposing the

key points

- Introducing summeractive perennial pastures has significantly reduced supplementary feed costs for Merino weaners.
- Later lambing has better matched feed demand and supply for the ewes, allowing a higher stocking rate and improving wool production and weaner survival.
- Rotationally grazing all pastures has significantly improved pasture performance and persistence.

farm info.

Case study: Shane Arnold Location: Cavendish, western Victoria Property size: 1650 ha Mean annual rainfall: 550-600 mm Soils: Range from sandy loam to heavier soils Enterprises: Self-replacing Merinos



Summer-active perennial pastures, which include lucerne, chicory and plantain, have significantly reduced supplementary feeding costs for the Merino weaners on Mokanger, western Victoria. INSET: Shane Arnold (centre) discussing grazing management and pasture species selection with agronomists Will Osmond and Lisa Warn at an EverGraze-Hamilton CRT field day on Mokanger. (Photos: Pamela Lawson)

business to fluctuating grain prices; especially during the drought.

It also produced a significant tail in the weaner flock as not all the weaners would get onto the grain supplement immediately.

Immediate changes

The first thing we changed was to gradually sow some of the pastures to chicory, lucerne and plantain to provide summer feed.

The aim was to balance the strong winterdominant perennial base of phalaris and subclover we already had.

The first two years we sowed 40 ha of chicory and then moved to a lucerne and chicory mix. We are continuing to sow 40 ha of this combination each year to accommodate 7000-8000 Merino weaners.

These summer-active pastures have enabled us to move lambing later from August to mid-September, because even during a dry winter or spring, the summer pastures will still grow and be green.

We can then wean the lambs during mid-December, at about 12 weeks of age (and about 20 kilograms liveweight), onto these pastures, which are productive between December to February most years.

The chicory and plantain are especially good at responding to summer rain and the autumn break.

Great results

We estimate the lucerne and chicory produces an extra 3-4 tonnes of pasture (dry matter per hectare) during summer, compared with phalaris and clover. This saves on supplements, such as lupins and barley, which we would otherwise purchase for the Merino weaners.

Put another way $-% \left(f_{\mathrm{r}}^{2}\right) =0$ if we assume these pastures produce one tonne of extra dry

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Same place, different pasture: Annual pastures that did not survive the drought and were subject to erosion issues (top left). This provided an ideal blank canvas for Shane Arnold to plant summer-active perennial pastures to fill the summer feed gaps (top right). INSET (Right): By lambing later in the warmer weather of mid-September, the marking percentage on Mokanger has increased from a 75% average to 80-100%.

matter per 25 mm of summer rain, the 150 ha we have in would typically produce 450 tonnes of dry matter over a summer with 75 mm of rain.

To buy this feed in at \$200 per tonne and 85% dry matter would cost \$235 per tonne of dry matter or \$105,750 in total, so the summeractive pastures offer a significant saving.

Increased production

The later lambing, during warmer weather, has increased lamb survival, resulting in our marking percentage increasing from a 75% average to 80% from a September lambing. During 2011 we marked 102% from joining.

The later lambing also better matches feed supply to demand for our ewes, allowing us to increase ewe numbers and the average mid-winter stocking rate from 15 to 17 dry sheep equivalents (DSE) per hectare. In turn we now cut more wool per hectare that is of a better quality due to improved nutrition.

Our wool production, averaging 65 kg/ha greasy wool at 16.5 micron for the adult sheep and 14 micron for the lambs, is still our greatest profit driver.

Our weaner mortalities have also decreased by 5% as a result of good growth rates during summer and autumn and higher weights going into winter.

If we save 350 weaners valued at \$80 per head that is an extra \$28,000 in our pocket.

We have also seen an improvement in the joining rate of our maiden ewes, as they are heavier at joining due to the time they spend on summer-active perennials.

We cut the summer pastures for silage during spring, producing high-quality fodder (11 MJ ME/kg and 20% protein) and controlling the spring flush to be ready for our December weaning.

The green feed provided by lucerne, chicory and plantain during summer also provide peace of mind by creating an excellent fire break around the house and sheds.

Establishment success

We have found it is important to select the right location to sow lucerne - it needs to be well drained and low in aluminium. The last two wet winters have demonstrated where we cannot sow lucerne.

When we identify a suitably well-drained paddock we carry out a soil test to check for acidity and aluminium levels. Liming is a simple solution for acidic areas.

Weed control measures need to start in the paddock two years before a spring sowing to ensure effective control and the lucerne seed must be freshly inoculated. We add molybdenum to fertiliser at recommended rates to support effective rhizobia. Plantain is very easy to establish and we can grow it in paddocks unsuitable for lucerne, but we are still experimenting with the range of soil types we can grow this species in.

Plantain and lucerne have very different grazing requirements and we don't sow the two together due to the high losses of lucerne from selective grazing.

Ongoing management

We rotate all our pastures which has significantly improved production and persistence. We generally allow about 20 days recovery between grazings, depending on the season, pasture growth and type.

Our average stocking rate in mid-winter is now 17 DSE/ha (ranges from 25-30 DSE/ha) on the renovated paddocks, compared to 7-8 DSE/ha on a typical annual pasture.

We also run replacement ewe weaners on the lucerne, chicory and plantain to bring them up to weight for joining. But we remove them to allow the pasture to recover adequately before silage production.

As we currently do not have enough summer perennial pastures for all the weaners, we draft the tail off soon after weaning to give them preferential treatment on the more productive pastures.

After they have fattened up a bit, we put them back with the main weaner flock and then draft the tail off to do the same again. This allows us to gradually bring the average weaner weight up and get the most out of the summer pastures.

Most of the property remains phalaris and sub-clover pastures, so we run the ewes and wethers on these throughout the year.

Some challenges

We have found the biggest limitation with chicory is getting it to persist beyond six years, due to root disease problems. As such, we are now moving away from chicory and including plantain in the summer perennial pasture mix and have been very impressed with the results at this stage.

We are also aware of the livestock health issues than can arise when sheep graze predominantly lucerne pastures, so we provide straw to the weaners on the lucerne so they can balance their own diet.

From ongoing benchmarking studies with Holmes and Sackett, our annual return on assets (ROA) was 9.6% during the 2010-11 year. This was an exceptionally good year after a near perfect season.

We hope to maintain, and even improve on these figures into the future by continuing to reduce our average micron, increase our stocking rate and keep supplementary feed costs down.

To achieve these goals we will keep improving perennial pastures each year, especially the more summer-active species." *

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