

26. Seed Free Lamb

Felicity Turner, MacKillop Farm Management Group, ftturner@mackillopgroup.com.au

Funding Body: MLA with support from SASAG (South Australian Sheep Advisory Group)

PROJECT ID: L.PDS.1604

INITIAL OUTCOMES

- Sowing feed into dwindling lucerne stands; either barley or the newer forage ryecorn varieties resulted in increased weight gains of lambs when compared with those lucerne stands where annual grasses were becoming more dominant allowing lambs to be finished quicker prior to the onset of grass seeds
- Oversowing with Scope CL provides a flexible option in the grazing system with the ability to graze for feed in a seed free environment, or to lock up for grain if seasonal conditions are favourable
- Heavy stocking rates (and possibly small paddocks or strip grazing methods) are needed to keep newer forage ryecorn varieties grazed down to maintain feed quality and maximise grazing benefits.

Background

The project aims to assess the benefits of using alternative grass forage species and newer Clearfield technologies to provide high quality fodder that will finish lambs in a grass-seed free environment. It was implemented at the request of the Sherwood Precision Management Group and focuses on producing high quality, seed free pastures in this environment.

In 2016, smaller scale plot trials were initiated as "proof of concept" to ensure that the species to be trialled performed as well as those traditionally grown, and that dry matter production or quality was not going to be lost by incorporating different pasture mixes.

In 2017, four Producer Demonstrations Sites (PDS) were established across three different farms to look at Clearfield Technologies

and the newer forage ryecorn varieties in controlling seeds and finishing lambs quicker prior to the onset of seed set. Two site visits were held at one of the farms to allow for discussions with other producers and advisors the systems that were being trialled and results that were being achieved.

A successful visit to the JBS Food Processing and Fabrication plant occurred in early 2018 to allow producers to understand the impacts of seeds on the processors business and also to allow for two-way discussions around the feedback process and lifetime traceability.

Activities

In 2017, four large scale demonstration sites were established. Two at "Tolcairn", 3081 Emu Flat Road, Sherwood (the Bartlett family), one at Nathan and Tracy Grossers, 2296 Senior Road, Senior, and one at "Narree Downs", 1769 Emu Flat Road, Sherwood (Charlie and Asha Crozier's).

The "Tolcairn" site was on paddock C3; a sandy paddock that has been clay spread and/or delved where Scope CL, Southern Green Forage Ryecorn and Vampire Ryecorn were sown across a third of the paddock (Fig1) and electric fencing set up to separate lambs that were grazing on the paddocks once weaned so that individuals could be tracked across the 3 different varieties.

The "Narree Downs" site had ScopeCL oversown into a dwindling Lucerne pasture on clayed sandy soil to allow the grasses to be controlled and provide late winter - early spring feed for lambs to be weaned onto.

The site at Grosser's (Fig2) was a deep sandy soil that was sown with the two ryecorn varieties side by side to provide early winter feed to finish lambs onto in Spring. The sandy soil can be seen in the site plan below. Note the larger proportion of heavier soil on the western side of the paddock where the Vampire ryecorn was planted.



Figure 1: PDS plan at "Tolcain".

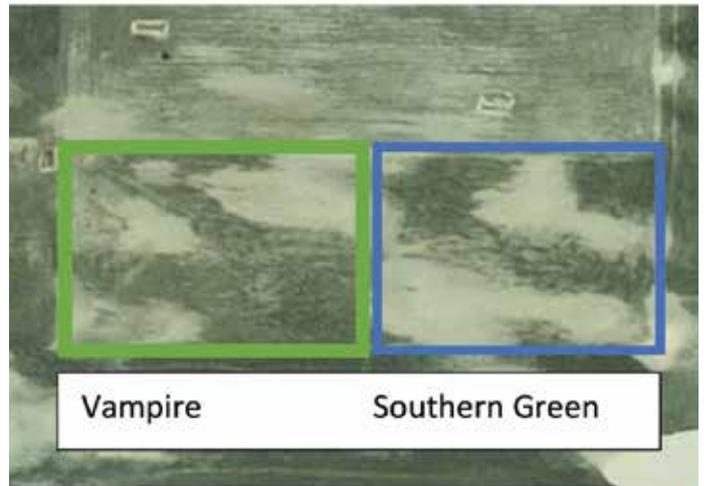


Figure 2: PDS plan at Grosser's with location of Vampire Ryecorn and Southern Green Forage Ryecorn.

Results & Discussion

"Narree Downs"

The Scope CL barley was oversown into a Lucerne paddock on the 15th May 2017 to provide late-winter, early spring feed for weaned lambs. The crop established well, and after the spray application of Intervix, the grass weed control was very good (with no visual detriment to the Lucerne plants). In late July prior to entry of the lambs, the decision was made to not graze and retain this paddock as a crop as there was an excess of late winter feed due to a good break and mild winter conditions. The crop ended up yielding 2.3T/ha. This highlights the flexibility of Scope CL in being able to be grazed early as a grain/graze option or to plant and then take through for grain if seasonal conditions allow.



Figure 3: Patchy germination with mouse holes evident.

Nathan & Tracey Grosser's – Senior

Cereal ryecorn was sown on the 7th May 2017. The seed was broadcast by spreader and incorporated by prickle chain. Slow emergence the previous season had highlighted the need for the ryecorn to be sown in the top 10mm (fairly shallow). Grosser's airseeder is not accurate in its seed placement, so the seed was spread and then incorporated with a prickle chain to ensure that it wasn't sown too deep. As a result, the germination was reduced and also subject to mouse damage early on resulting in a patchy germination (Fig.3-4).



Figure 4: Mouse Hole in paddock.

Visually, the Vampire Ryecorn appeared to produce more biomass, however it was also planted on the heavier country making comparisons difficult.

The forage ryecorns were grazed post-weaning and weight gains of these lambs measured. The weight gain in the lambs was 280g/day. This was the same as 'standard practice' of sowing barley and grazing for winter-early spring feed.

Due to favourable winter conditions, lambs were sold earlier than anticipated, so stocking numbers were lower than expected. This resulted in the ryecorn running up to head and becoming unpalatable to young stock (Fig 5). When grazing cereal ryecorn, paddock size and the ability to graze heavily should be taken into account.

The ryecorn would suit a mixed farm operation with both sheep and cattle, where the cattle could capitalise on the feed once it became unpalatable to lambs.

It also suited dry sheep, as the ryecorn residue was a much tougher plant compared with the barley stubble and reduced the impact of sheep camping on sandhills; the ryecorn played an important role over the summer period in soil stabilisation compared with a cereal stubble.



Figure 5: Ryecorn growth (October 2017).

“Tolcairn”

The paddock at “Tolcairn” was sown between the 3rd and 5th May 2017 with 11ha Lucerne oversown with Scope CL barley and 27.5ha sown with the two forage ryecorn varieties (13.5ha of Southern Green Forage Ryecorn and 14ha of Vampire Forage Ryecorn). The seed was sown with an airseeder and planted with 60kg/ha DAP fertiliser. The ScopeCL was sprayed for grass weed control on 11th July and the Forage Ryecorn was spraytopped on 5th October to reduce grass seed set. Fig.6 shows the growth mid-July 2017.

Feed samples were taken prior to initial entry of lambs on 27th July 2017 and sent to Agrifood Technology for analysis (Table 1). Additional feed samples of the ryecorn were taken on 13th September 2017 as lambs were being placed back on the paddock (Scope CL wasn't grazed at this time as there wasn't enough feed present). These feed sample results are shown in Table 2.



Figure 6: Pasture growth 20th July 2017.

Table 1. Biomass production and Feed Quality 27th July 2017

Forage Mix	DM(T/ha)	Crude Protein	Acid Detergent Fibre	Neutral Detergent Fibre	Dry Matter Digestibility (%)	Metabolisable Energy	Fat (%)	Ash (%)	AFIA Grading (Cereal hay and silage)
Vampire+Lucerne	2.4	27.5	23.9	40.4	79	12	4.5	14.3	A1
SthnGreen+Lucerne	3.08	24.7	22.8	36.7	75.6	11.4	4.4	12.5	A1
Scope CL + Lucerne	2.36	24.2	23.1	38.5	80.1	12.2	4.2	11.1	A1
Vampire	2.27	22.2	26.9	45.3	73.6	11	3.9	12.5	A1
Southern Green	1.88	22.5	25.8	41.3	73.8	11.1	4	14.3	A1
Scope CL	1.8	27.2	24.3	39.5	80.7	12.3	4.1	13.1	A1

Table 2. Biomass production and quality data 13th September 2017

Cereal Variety	DM(%)	Crude Protein	ADF	NDF	DMD	ME	Fat (%)	Ash (%)	AFIA Grade
Vampire Forage Ryecorn	17.1	26.8	25	39.2	77.3	11.7	4.4	13.2	A1
Southern Forage Ryecorn	16.4	27.5	24	37	78	11.8	4.4	11.2	A1

Post-weaning, all lambs were placed in a Compass barley paddock that was being used under a 'grain and graze' scenario. They grazed this for 23 days prior to being yarded where a sub-sample of lambs were tagged and weighed in from each group and then weighed out to compare weight gains from each of the ryecorn varieties compared to the ScopeCL barley. The lambs that were run under standard farm practice (lucerne, clover and annual grasses) were those that were weaned at a lower weight as the standard paddock was further away from the yards.

The lambs were described as being 'social' and a single electric fence wire separating them from their mates didn't work very effectively. As a result, those grazing the two ryecorn varieties were unable to be segregated from each other. The lambs grazing the Scope barley had double electric wires separating them from the ryecorn area – this method worked much more effectively. Fig7 shows lambs grazing Southern Green Forage Ryecorn in mid September.

The growth rates of lambs grazing both the Scope CL barley and forage ryecorn varieties were very similar; achieving an average of 450g/day between the 3rd August and the 4th September. In

addition to paddock feed, the stock were given access to grain in feeders (same amount per lamb per day). These growth rates are at the top end of what has been achieved on the farm, with standard growth rates generally being 350-420g/day.

There was a large difference in the total grazing days and stocking rates achieved between the Scope CL (1.4 d.s.e./acre) and the forage ryecorn varieties (2.4 d.s.e./acre) suggesting a lot higher biomass production by the Vampire and Southern Green Forage Ryecorn varieties.



Figure 7: Lambs grazing mid-September.

Conclusions / Future Activities

The newer forage ryecorns appear to be a viable option on both deep sandy soils and modified sandy soils, however they need to be managed effectively (heavy grazing early on) to maximise these benefits.

Scope CL continues to provide a good grazing option with good quality feed produced during the winter period where grass weeds, and particularly those that are resistant to paraquat are present; allowing for the management of weeds in a cereal-based system.

All activities demonstrated show an improvement in production levels across the farm and have the potential to allow producers to be more flexible in their management strategies as they have increased their confidence level in their ability to manage grass seeds.

In 2018, these practices will be expanded to paddock scale demonstrations, where eight producers will be involved in using either Scope CL as a grazing option, or alternatively grazing lambs on the newer forage ryecorn varieties.

ACKNOWLEDGEMENTS

- Rodney and Paul Bartlett, Bartlett Brothers "Tolcairn" via Sherwood
- Nathan and Tracey Grosser, via Senior
- Charlie and Asha Crozier, "Narree Downs", Sherwood
- Sherwood PMS Group
- Anne Collins, PIRSA
- Funding Bodies: MLA and SASAG (the South Australian Sheep Advisory Group)

CONTACT

- Please contact Felicity on 0400 299 087 or fturner@mackillopgroup.com.au with any queries .

