

SALTBUSH ALLEY FARMING TRIAL AT CONDOBOLIN

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Key messages

- Past work has indicated that Old Man Saltbush could have a useful place in mixed farming systems in the NSW wheat belt.
- This is a long term trial designed to have excellent applicability to commercial farms.
- Initial results show a trend towards less liveweight and fat loss during summer in the plus-saltbush sheep.
- Results so far are not statistically analysed. More years of data are required before this can happen.

Background

Research into Old Man Saltbush (OMSB) has been conducted at Condobolin Agricultural Research & Advisory Station over the past 8 years. In summary, this work showed that OMSB is capable of supplying a consistent source of feed that has an extended availability to stock due to its persistent leaf. It also showed that the feed was high in protein but suboptimal in energy and that animal utilisation was high due to lack of fouling and trampling by stock. These attributes suggested that OMSB would make an excellent complement to annual pastures and crop stubbles over the summer-autumn period.

Later case studies, involving a number of co-operating landholders located across a wide range of the NSW wheat belt, showed that OMSB can be successfully incorporated into farming systems and provide a valuable 'stabilising' effect, thus producing a more resilient farming system. The case studies also pointed to the possibility of significant resource management benefits, particularly reduced deep drainage, reduced soil erosion and enhanced biodiversity.

The trial

The trial draws on this previous work and is testing a 'best bet' approach to incorporating OMSB into wheat belt farming systems in NSW.

The trial is comparing profitability, productivity and environmental effects of farming systems with and without the addition of OMSB. Each system has been set up as a 'mini farm'. System one operates a crop/pasture rotation that is similar to that used in the central west region of NSW. System two has an identical crop/pasture rotation, but each paddock has had 20% of its area replaced with alleys of Old Man Saltbush.

In total there are 30, ten hectare paddocks in the trial. The 15 paddocks in system one have their whole area either in crop or pasture whilst the 15 in system two have crop or pasture on 8 ha with alleys of saltbush on the remaining 2 ha.

The trial is rotationally grazed by two mobs of 100 Merino ewes. One mob of ewes only ever graze those paddocks without saltbush whilst the other mob only ever graze the corresponding paired paddock that has OMSB added.

Ewes are joined to Poll Dorset rams at the start of January and the lambs are grown out on the trial for sale.

Ewes from two contrasting bloodlines are used to see if they or their lambs perform differently in the two grazing systems. The two bloodlines are Centre Plus and Roseville Park and the trial flock contains equal numbers of both bloodlines.



Progress

The bulk of the saltbush were planted in winter-spring 2005. Many plants grew well but a proportion grew slowly due to lack of rain. To avoid damage to these small plants, stocking of the trial was delayed until October 2006.

Getting the crop and pasture sections of the trial paddocks into the appropriate phase was complete in 2004. Pasture and crop yields between the two systems have been similar on a cropped area basis. Because the plus saltbush paddocks have less area of crop or sown pasture than the no-saltbush paddocks, their productivity on a paddock area basis is less than the without saltbush paddocks. Analysing whether this reduction in cropped area is made up for by extra profit from livestock grazing the saltbush will not be known for some time but is a key question.



Results

Having only been stocked in October 2006, the data collection in this long term trial has only just begun. As a consequence, there aren't any comprehensive, statistically analysed results to report yet. Properly analysed results will not be available until after a full crop/pasture rotation has been completed (5 years). This is due to a trade off between what was necessary for applicability of results to a real farm and the requirements for appropriate statistical design.

Below, however, are a sample of livestock results to date.

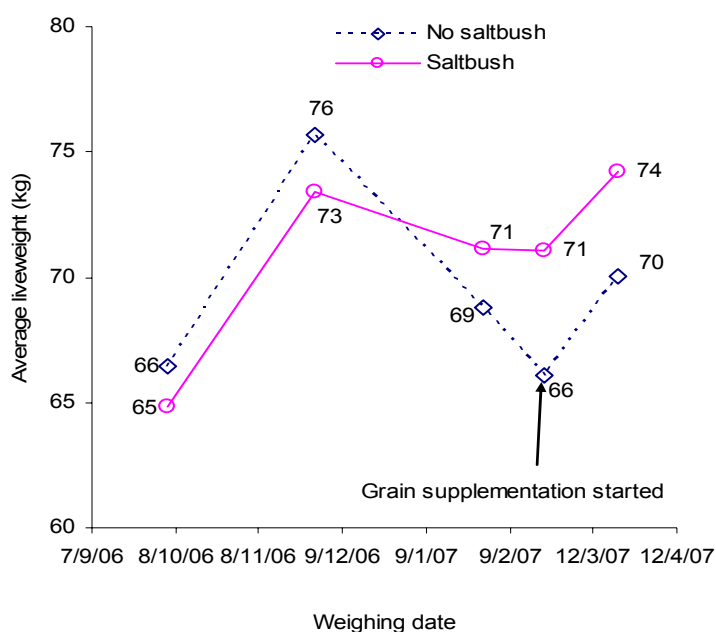


Figure 1. Average liveweight of ewes with or without saltbush in their diet

Ewe weights

From Figure 1, there are three things that are immediately evident.

1. The high weight gain between the first and second weighing
2. The drop off in weight of the sheep after the second weighing.
3. The weight gain after supplementation was started.

The high initial weight gain is partially explained by paddock history. The paddocks had not been grazed for at least a year prior to stock introduction so, with the amount of stored feed available, there was an expectation liveweight would increase. However, it was not expected they would increase this much, but then, agriculture is filled with unexpected results!

Availability of green feed to the plus saltbush sheep may be responsible for keeping average weight more stable than the no-saltbush mob at weighings 2 to 4. As is often common at this time of year, there was little green feed in most trial paddocks over this period. So if there was going to be a benefit from saltbush, this is a likely time for it to occur.

However, we need to be careful that this is not simply a case of the saltbush sheep drinking more water due to the higher salt content of the feed they are consuming. Future measurements will help clarify this.

After the 4th weighing, supplementation of the animals commenced. The no-saltbush sheep were also temporarily removed from the trial because there was no feed available. They were 'agisted' to a pre-arranged feeding paddock where they had access to dry feed and grain. The plus-saltbush sheep stayed grazing saltbush and were also fed grain.

Both mobs of sheep gained weight after supplementation commenced. It will be interesting to see if this translates into increased fat score in the future.



Fat score

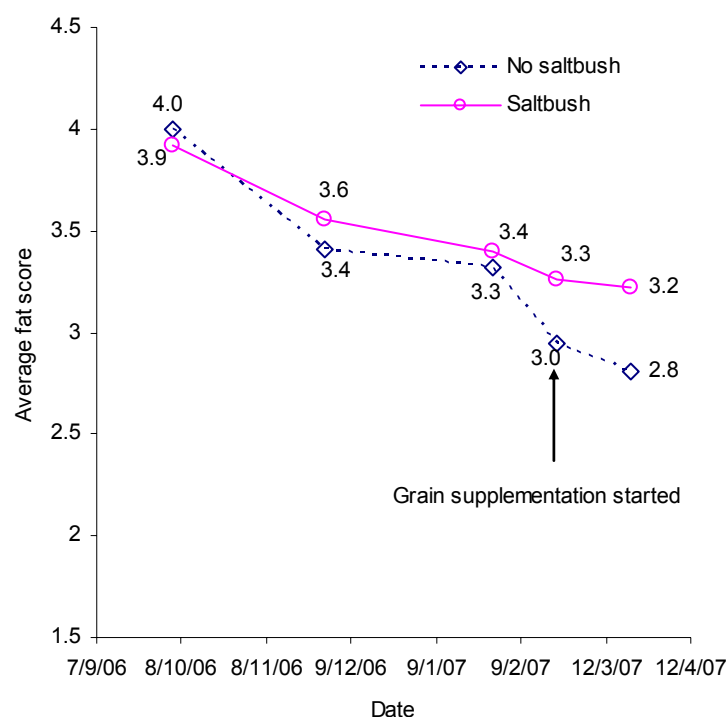


Figure 2. Average fat score of ewes with or without saltbush in their diet

A slower moving but perhaps more telling method of observing the direction of weight change is to look at fat score. Manual fat scoring was performed at each weighing (Figure 2).

After starting out at similar fat scores, both groups of ewes lost fat, even after grain supplementation commenced. It is interesting to note that there is a trend appearing in that the no-saltbush sheep have lost more fat in recent months than the plus-saltbush sheep. This may or may not be a statistically significant difference. Again more time and data collection is required.

Prime lambs

The prime lamb progeny from the trial ewes were born before stock were put onto the trial. However, the lambs were put onto the trial at the same time as their mothers and subsequently spent six weeks grazing the trial paddocks before being sold. Whilst this is a short time for the animals in the plus-saltbush paddocks to get used to this new feed, they did eat some of it during their short stay. After going onto the trial at the same weight, the lambs grazing in the saltbush paddocks were, on average, 2 kg heavier in liveweight at turnoff than the no-saltbush animals. Again more time and data collection are required to determine if these changes are statistically relevant.

Conclusion

Some interesting trends are evident in the sheep data even at this early stage. However, whilst they are interesting, not too much should be read into them at this stage as we are unable to test them sufficiently without further long term data.

Funding

The trial is funded by the Central West/Lachlan Grain & Graze program. Grain & Graze is a national program investigating 'mixed farming systems' and is a collaborative partnership between the Grains Research and Development Corporation (GRDC), Meat and Livestock Australia (MLA), Australian Wool Innovation Limited (AWI) and Land & Water Australia. The Central West/Lachlan region is one of nine across the traditional sheep/wheat zones of southern Australia. For more information visit the website at www.grainandgraze.com.au

This research is being conducted by NSW Department of Primary Industries.

CWFS is a regional partner of the Central West/Lachlan Grain and Graze program.

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