

Saltbush in farming systems

Increasing the productivity and profitability of South Australian sheep enterprises from grazing saltbush plantations

Newsletter – Edition 1

December 2010



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- A project update – December 2010 -

Background:

With funding provided by the South Australian Sheep Industry Fund, Productive Nutrition in collaboration with SARDI in their Caring for Our Country project with the Coorong LAP, are using their experience and expertise in livestock nutrition to investigate saltbush and assess its value to livestock grazing systems.

This applied research is attempting to answer and evaluate some critical production questions including, whether it is cost efficient to establish saltbush, the most effective supplementary feeding strategies for livestock grazing saltbush, the recovery rates after grazing and the nutritive value of saltbush in a range of locations and seasonal conditions.

Information generated to date and current results have been discussed at field days at the following sites during 2010:

- Glenroy Estate, Carrieton SA
- Mt Russell, Coomandook, SA

Producers across three sites in South Australia are participating in this project.

Site 1: Carrieton (non-saline, low rainfall)

John and June Parnell of Glenroy Estate, Carrieton SA are undertaking this applied research with a trial comparing ewe performance when grazing saltbush with several supplementation options. In 2010 two trial mobs have been run on saltbush and on a rotation of saltbush and native pasture. These mobs were supplemented with barley such that both diets had comparable ME levels, ewe liveweight and body condition were assessed pre- trial and again in late spring; lamb weights and marking percentages were recorded. Alternative grain supplementation options will be trialled and compared in the coming years of the project.



Site 2: Coomandook (non-saline, medium rainfall)

The second participants in the project, the Freak's of Mt Russell have a saltbush plantation on deep sands and are comparing the performance of different saltbush varieties at Mt Russell and Booderoo in terms of dry matter production. In addition sheep grazing the stand at Mt Russell have been supplemented with barley and lupins and body condition and weight gain comparisons have been made.



At Booderoo comparisons have been made between set stocking and rotational grazing of saltbush stands; in addition interrow feeds such as triticale, lucerne and veldt grass have been compared by measuring dry matter production and animal performance. It is anticipated that this data will be available in early 2011.

SARDI are managing the project on the Coomandook sites and contributing their data to the overall saltbush project.

Site 3: Point Pass (saline, medium rainfall)

The third trial site includes a section of the Schutz property at Point Pass, SA. This long term saltbush stand was established as a tool to reclaim salt affected land which has provided an opportunity to monitor dry matter production, nutritive value and the mineral status of saltbush in saline environment compared to productivity and profitability with a non-saline environment. No animal trials are taking place at this site.



What's been happening?

Survey results

A survey was completed by project stakeholders to gauge understanding of the current use of saltbush in farming systems and what they perceived to be the benefits and limitations of saltbush establishment. 60% of the respondents indicated they had saltbush on their property and although 10% of the total participants were unsure of its role in farming systems, 50% indicated that it was a valuable feed resource with positive environmental benefits (Figure 1).

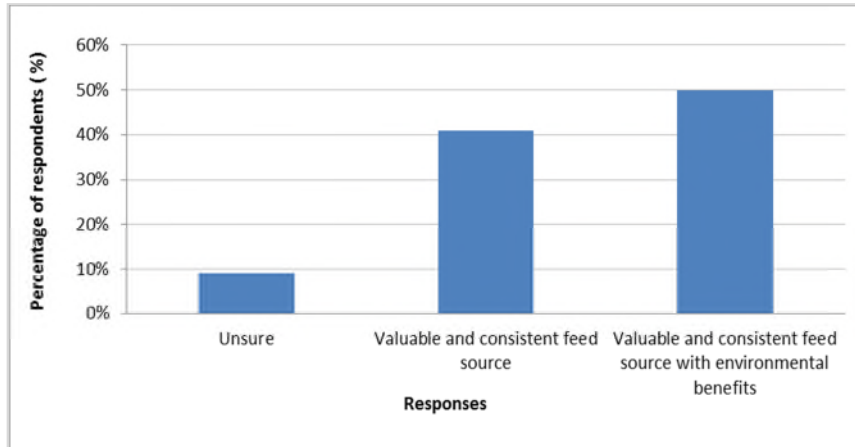


Figure 1 What role does saltbush have in farming systems?

14% of respondents did not feel that supplementation was warranted, 40% thought that supplementation should be provided but interestingly over 40% were not sure about the need for supplementation (Figure 2). This uncertainty underpins the need for this project work.

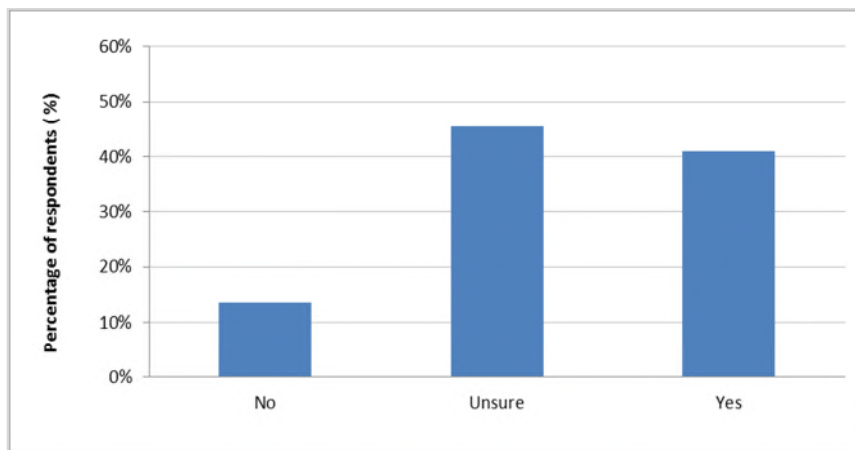


Figure 2 Do you think that supplementation should be provided to livestock grazing saltbush?

Of the 59% of respondents with saltbush on their property, all are currently using it as a component of their grazing system although views about the need for supplementation were quite varied:

- 15% believe that supplementation should not be provided to livestock when grazing saltbush
- 31% are unsure whether supplementation should be provided to livestock when grazing saltbush
- 54% believe that supplementation should be provided to livestock when grazing saltbush

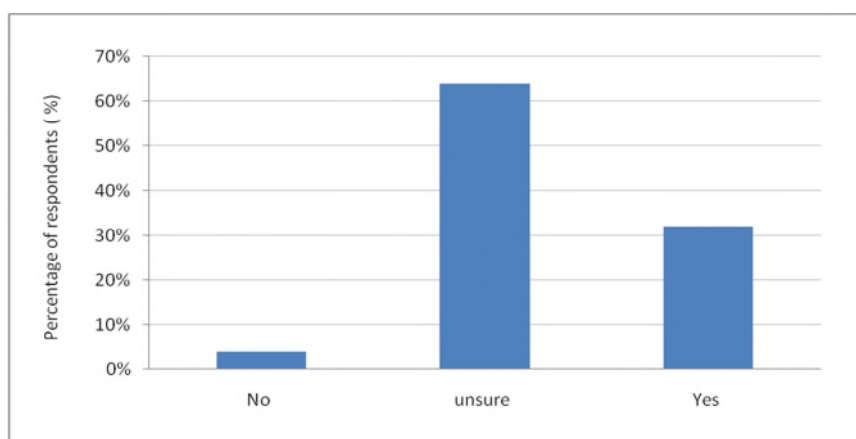


Figure 3 Do you think saltbush is cost-effective to establish as a feed resource?

Of the 59% of respondents currently grazing saltbush on their property:

- 8% believe that it is not cost effective to establish as a feed resource
- 54% are unsure whether it is cost effective to establish as a feed resource
- 38% believe that it is cost effective to establish as a feed resource

With an establishment cost of \$500 - \$700/ha it was surprising to learn that 64% of respondents were unsure about the cost-effectiveness of such a plantation (Figure 3).

Summary of results to date

Site 1: Carrieton

Ewe weight and body condition

Despite barley supplementation to an equivalent ME intake (15.5 MJ/d in late pregnancy; 17MJ/d for lactation), the ewes grazing saltbush lost weight (3.2kg) over the winter whereas the ewes grazing native pasture had gained weight (5.5kg) during this period (Figure 6). However the saltbush ewes had lambs later in the season. These differences are reflected in Figures 4 and 5.

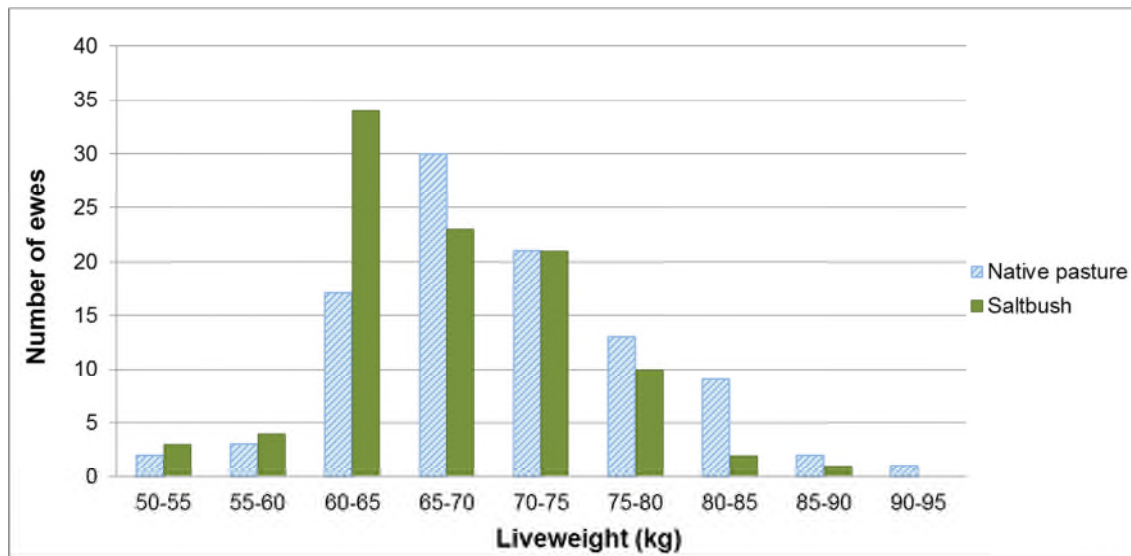


Figure 4 Liveweight distributions of Carrieton ewes in March, 2010

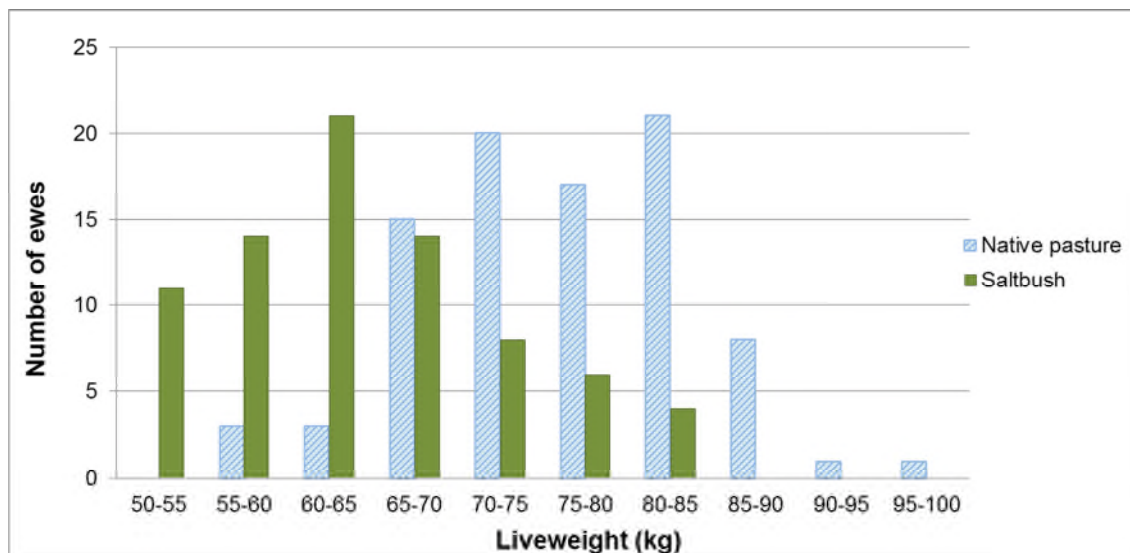


Figure 5 Liveweight distributions of Carrieton ewes November, 2010

The ewes grazing native pasture significantly also increased body condition score ahead of their saltbush grazing counterparts.

Lamb weights and growth rate

Unweaned lamb weights were recorded at 4.7 months (November 2010). Figure 6 demonstrates the distribution of lamb weights across several weight ranges. The lambs grazing native pastures averaged 42kg live weight compared with 33kg for the lambs on saltbush. However it should be noted that there were some late lambs in the saltbush group.

These results are consistent with ewe performance in the trial mobs. The average daily growth rate to 4.7 months was 266 g/ head/ day for the native pasture lambs compared to the saltbush lambs growing at 207g/ head/ day.

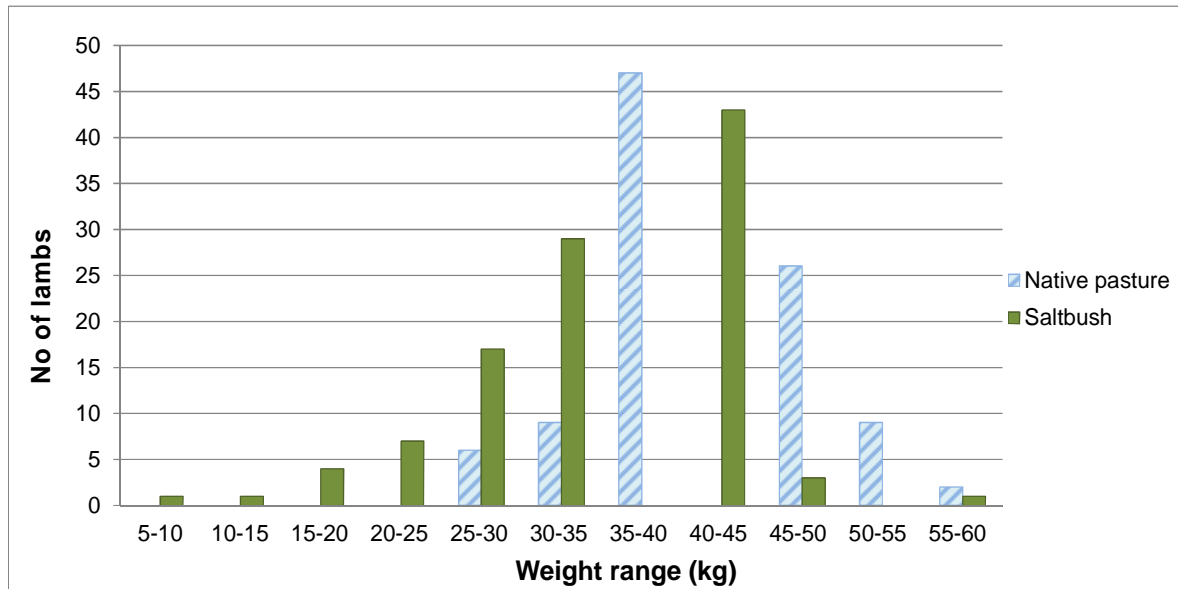


Figure 6 Liveweight distribution of Carrieton lambs November, 2010

Feed measurements - Test results

Plant tissue test of saltbush was taken across the three trial sites of the project. The nutritive value and mineral status of the saltbush was taken at different times throughout the year.

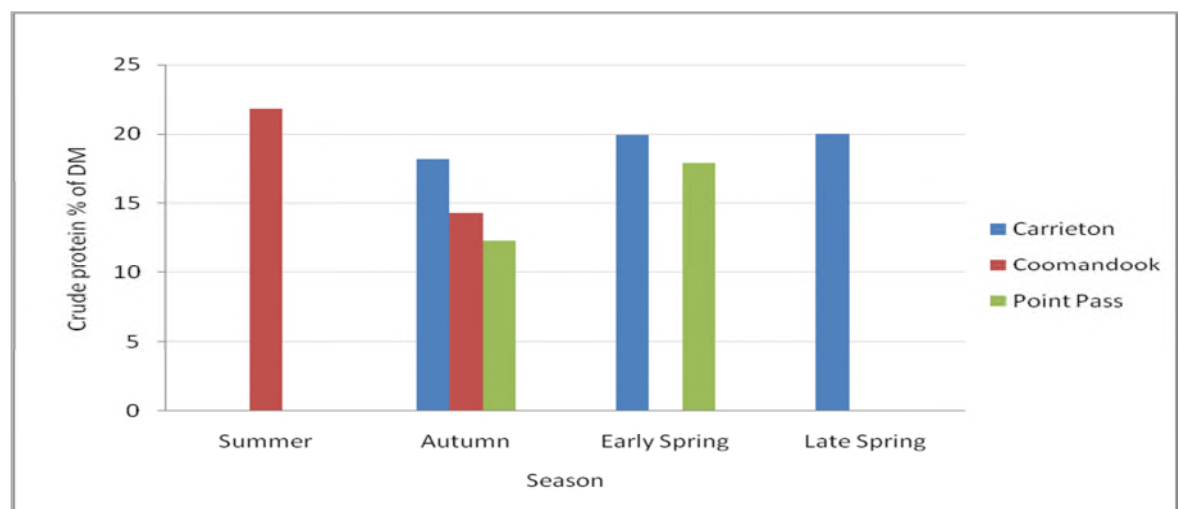


Figure 7 the variation in crude protein (%) of saltbush during 2010 at the three trial sites

Crude protein (Figure 7) and metabolisable energy (ME) (Figure 8) levels in the saltbush over the three trial sites have shown a significant variation. These results will be used as a benchmark for the three years of the trial. The ME results appear considerably higher than previous results taken at the Carrieton site over a number of years.

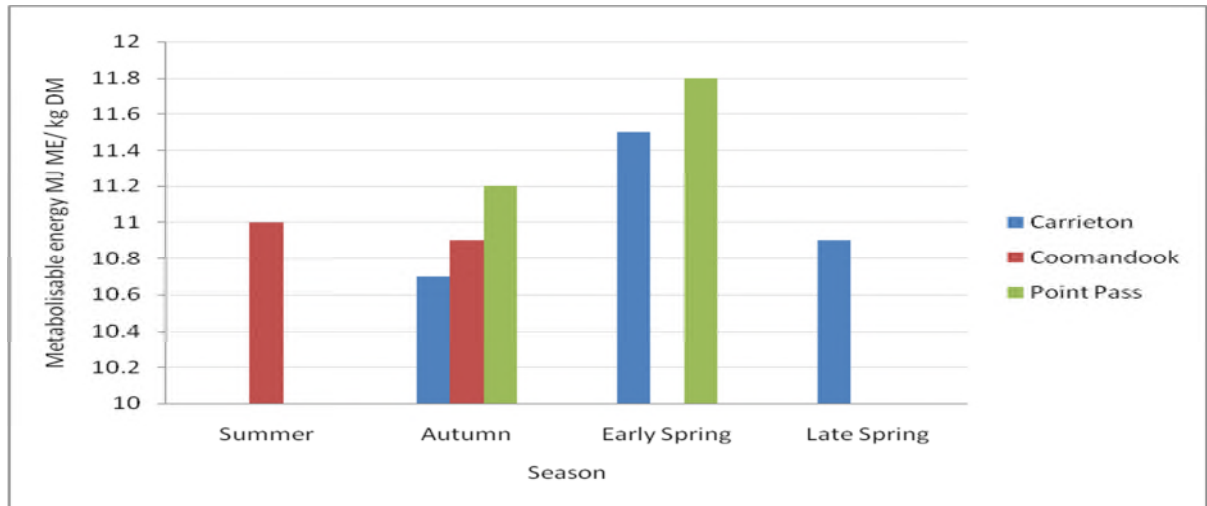


Figure 8 Variation in ME of saltbush during 2010 at the three trial sites

The high ME results could be a result of unusually wet conditions in 2010 with all sites having recorded up to 14% more rainfall than the long term median.

Dry matter production

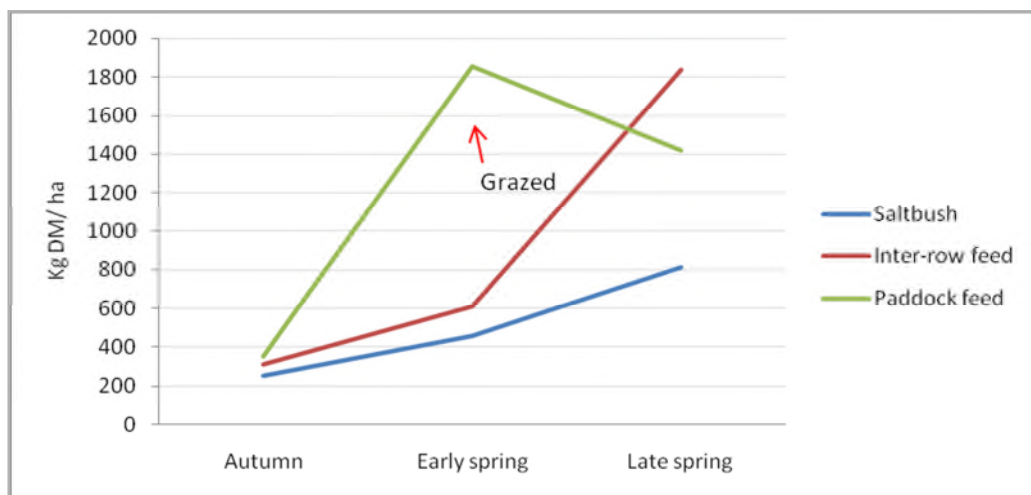


Figure 9 Saltbush DM production at Carrieton during 2010

Figure 9 shows the available dry matter of saltbush, inter-row feed and pasture that were measured at the Carrieton site in 2010.

These trends were as expected with saltbush inter-row increasing gradually over late winter early spring and dramatically increasing over spring to make up the bulk of available dry matter and contributing substantially to the ewe's diet.

Available saltbush dry matter gradually increased throughout the season providing a consistent feed supply over the year.

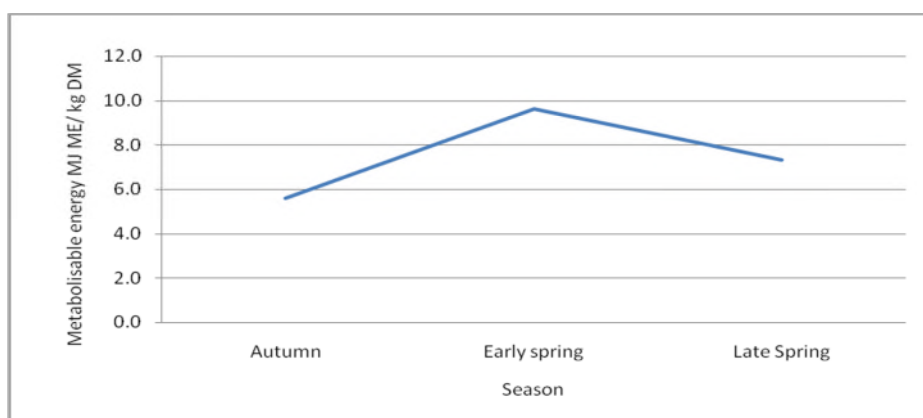


Figure 10 Variation in metabolisable energy (ME) of native pasture at Carrieton during 2010

Both ME (Figure 10) and crude protein (Figure 11) increased significantly during spring this year however further years of sampling will more clearly demonstrate the significance and consistency of these variations.

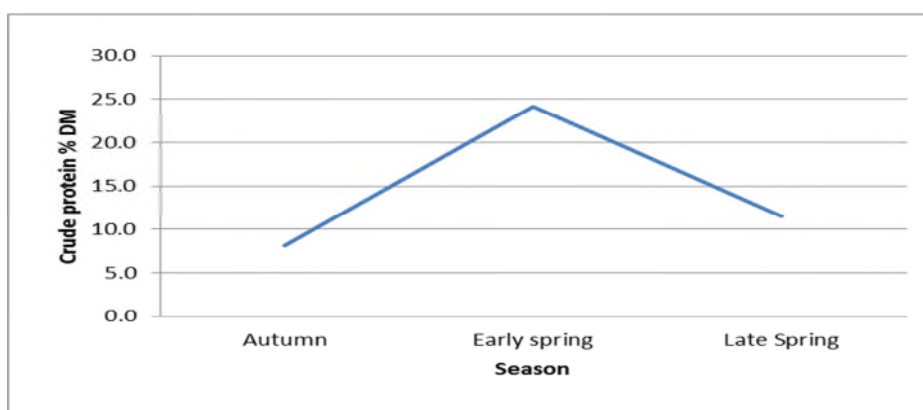


Figure 11 Variation in crude protein content (CP %) of native pasture at Carrieton during

Site 2: Coomandook

Ewe weight and body condition

Figure 12 shows the average liveweight of pregnant ewes provided supplementation barley or lupins and no supplementation at the break of the season at Coomandook in 2010.

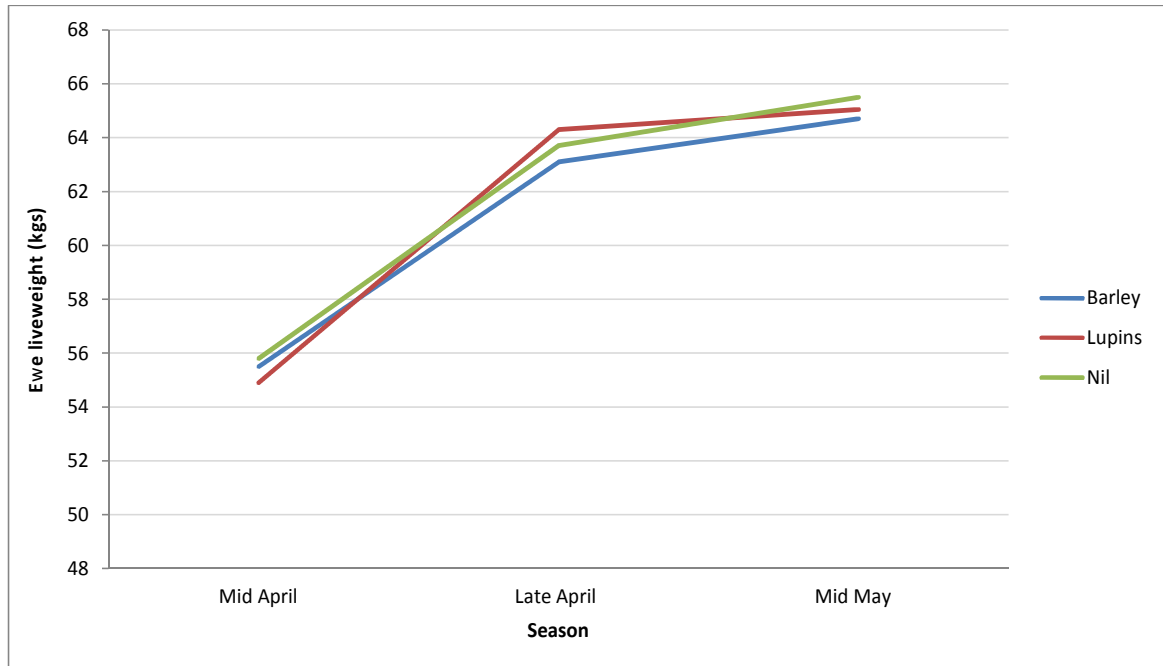


Figure 12 Average liveweight of ewes provided supplementation at Coomandook 2010

Liveweight and body condition score measurements taken over the month suggests that there are only slight differences between supplementation and not and the type of supplemented provided when grazing saltbush. This is surprising considering the diets for both supplemented mobs were formulated to 9.6 MJ ME/ kg DM and the Nil supplementation mob 5.9 MJ ME/ kg DM.

Overall the liveweight of all these trial mobs increased over the month however this is inconsistent with body condition measurements which showed that there was a decrease in average condition score from 3.3 to 2.75 over the trial period.

Dry matter production

Figure 13 shows the available saltbush and inter-row dry matter that was available during the pregnant ewe trial at Coomandook.

Decreasing levels of saltbush and inter-row dry matter are to be expected with ewes grazing and depleting the amount of feed on offer in the paddock

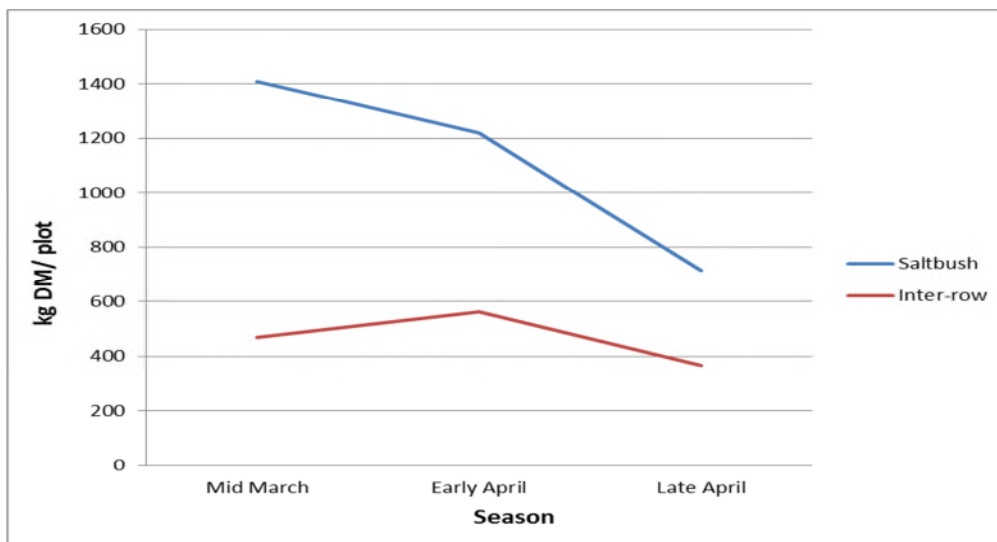


Figure 13 Feed on offer available at Coomandook trial site in 2010

Further trials are not expected to be conducted at the Mt Russell site until 2011.

Site 3: Pt. Pass

Dry matter production

Dry matter production of saltbush at both non-saline and saline sites was measured in April and September in 2010 (Table 1).

Table 1 Available saltbush leaf dry matter at Pt pass

Site	14/04/2010	07/09/2010
Non- saline	Just completed grazing	225 kg DM/ ha (Shrubs had been cut)
Saline	2471 kg DM/ ha	66 kg DM/ ha (Shrubs grazed then cut)

Comparisons of dry matter production across sites should become more meaningful as repeat measurements are taken over the course of the project.

**For further information about this project, please contact Productive Nutrition Pty Ltd
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