

Value of Feed

Contents

Key results.....	1
Introduction	1
Method	1
Great Southern (GSM) and Wheatbelt (CWM) Results	2
Value of an extra 100kg/ha of FOO.....	2
Value of different amounts of extra FOO	3
How supplement and sheep prices effect the value of extra feed.....	3
Value of early feed by stocking rate	4

Key results

- Early in the season 100kg of pasture is more valuable than 100kg of supplement because the pasture can be deferred to provide greater future benefits.
- The benefits of additional feed increase at a diminishing rate. Meaning that an extra 100kg/ha of pasture is worth more when FOO is low.
- Additional feed is much less valuable at low stocking rates.
- Pasture increases in value as the grain prices increase.

Introduction

The aim of the analysis was to determine the profit of an extra 100kg/ha of FOO at different times during the growing season.

Method

This analysis was carried out using the AFO whole farm model (<https://australian-farm-optimising-model.readthedocs.io/en/latest/index.html>). It comprises a powerful whole year feed budget that can examine the optimum utilisation of feed resources across the whole farm. This makes AFO appropriate for valuing extra feed at different times during the year.

To provide the model with an extra 100kg/ha of pasture the pasture growth rate was increased by a calculated amount at the time of the year when the extra feed was to be valued. There was no cost associated with obtaining the extra feed.

Table 1: Summary of the management and productivity of the flock in each region.

Parameter	Great Southern region	Wheatbelt region
GS rainfall	600mm	375mm
Approx. pasture growth ¹ (t/ha)	6.0	3.3
Average Lambing Date	7 Aug	24 May
Lamb price (\$/kg)	5.27	5.27
Weaning percentage (%)	94	91
Lamb survival (%)		
Single	90	86
Twin	75	73

¹ Pasture growth changes in AFO depending on management.

Great Southern (GSM) and Wheatbelt (CWM) Results

Value of an extra 100kg/ha of FOO

- Extra feed is most valuable early in the growing season (April – May) because feed is limiting the carrying capacity most at that time of year. Early feed can also be deferred for greater future benefits.
- Extra early pasture is more valuable in the Great Southern where early feed is more limiting for overall stocking rate than in central wheatbelt where the longer summer is a greater limitation.
- To best utilise the extra feed stocking rate must be increased.
- The increase in feed value towards the end of the year is due to finishing lambs and bridging the feed gap between pasture and stubbles.

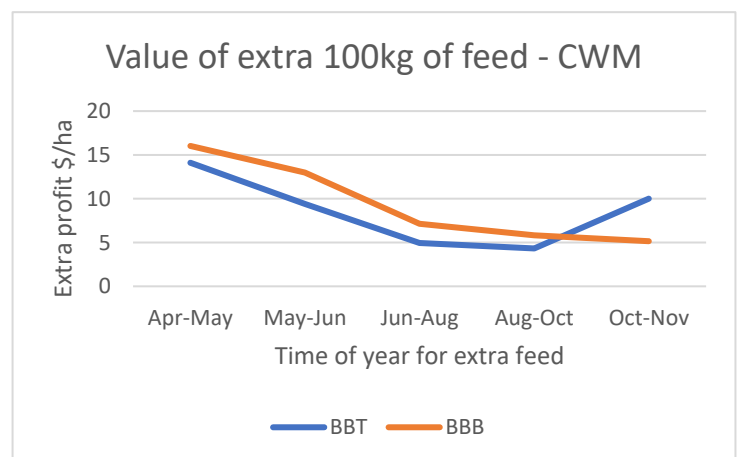
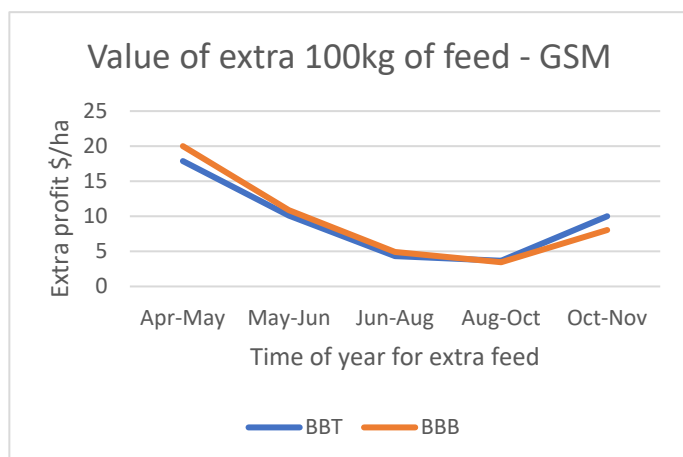


Figure 1: Value of an extra 100kg/ha of pasture at different stages during the year for a full merino flock (BBB) and a self-replacing merino flock with surplus mated to a terminal (BBT).

Value of different amounts of extra FOO

- Like most things in economics FOO has a diminishing return on investment. Meaning the first kilogram of extra FOO is more valuable than the 100th extra kg of FOO.
- Another way to think about this is that if you alter the feed supply (on-farm) by adding a lot of feed at only one time of the year without improving the remainder of the season then the value drops off.

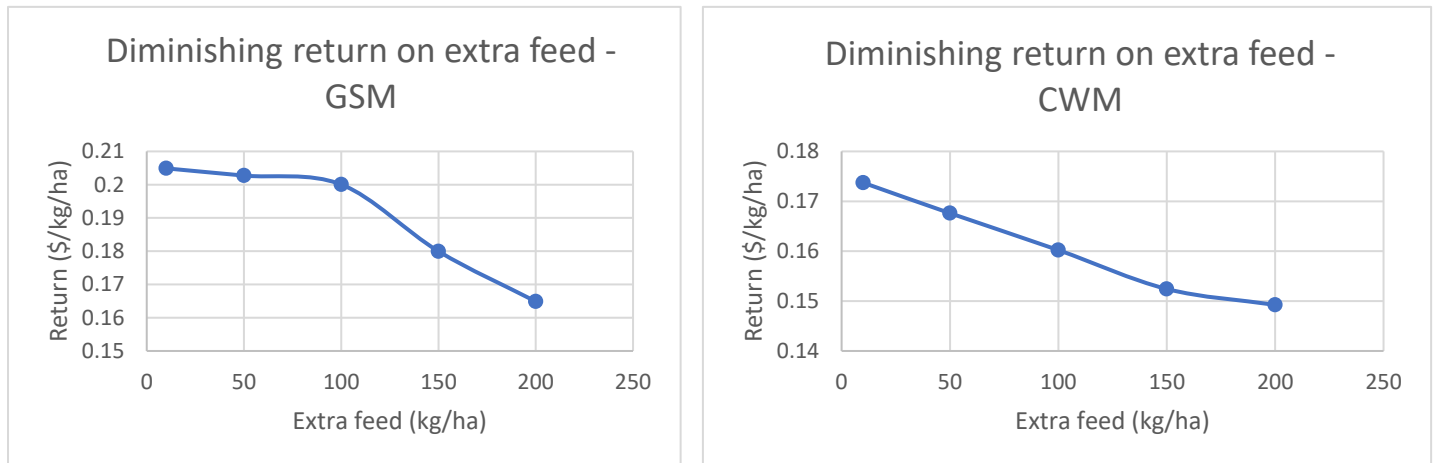


Figure 2: Diminishing return on extra feed for the Great Southern region and the Central Wheatbelt region.

How supplement and sheep prices effect the value of extra feed

- Increased grain prices increase the value of pasture increases while it is still profitable to feed grain to increase SR. But past a certain point (which is lower for CWM) feeding grain to increase SR will become unprofitable and the value of extra pasture will unlink from the grain price.
- Later in the season increased grain prices have a lower impact because there is more feed available and the quality of pasture is lower thus 100kg of pasture does not substitute 100kg of supplement.

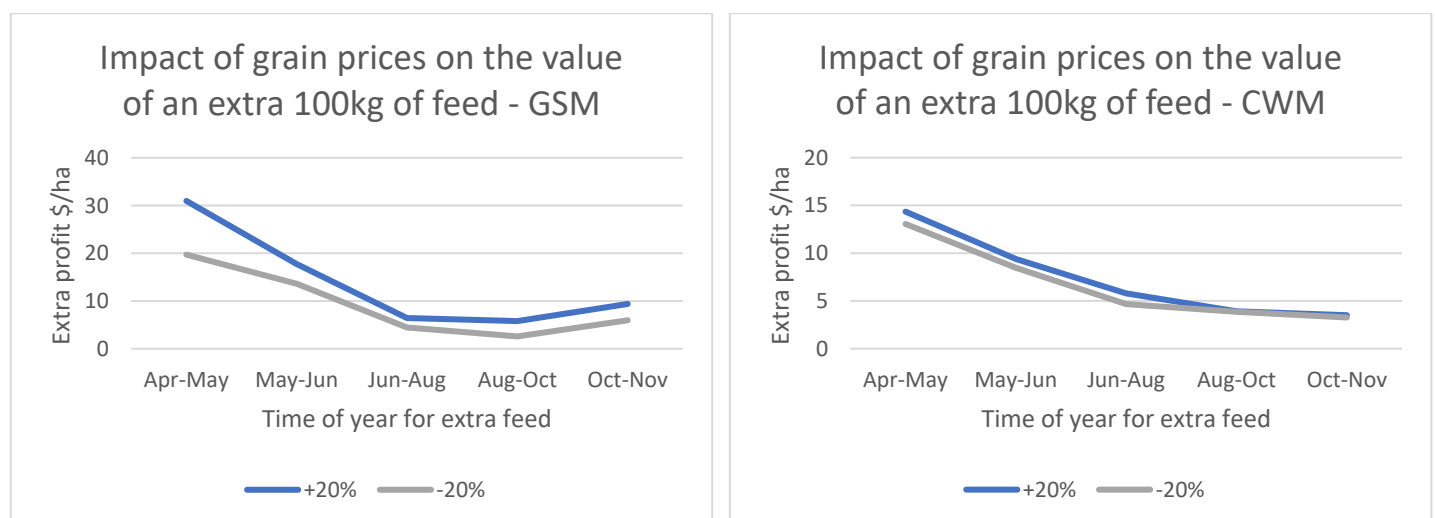


Figure 3: Impact of grain prices on the value of an extra 100kg/ha of feed at different stages during the year in the Great Southern region and the Central Wheatbelt region.

Value of early feed by stocking rate

- Higher stocking rate significantly increase the value of feed early in the season. However, during spring when there is lots of feed available the marginal benefit of extra feed varies less for different stocking rates.

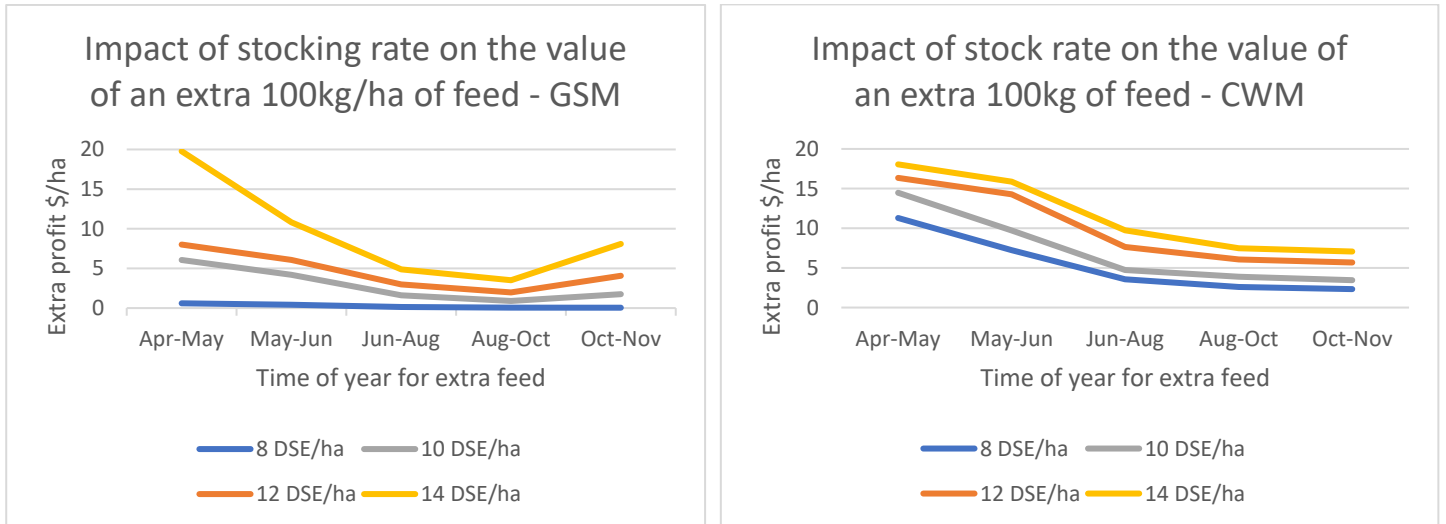


Figure 4: Impact of stocking rate on the value of an extra 100kg/ha of feed at different stages during the year in the Great Southern region and the Central Wheatbelt region.

Value of extra FOO in early vs late break season

- If the same stocking rate is used extra feed is worth more in later breaks.
- Note: The marginal benefit will diminish as the break gets later (the linear trend will not continue).

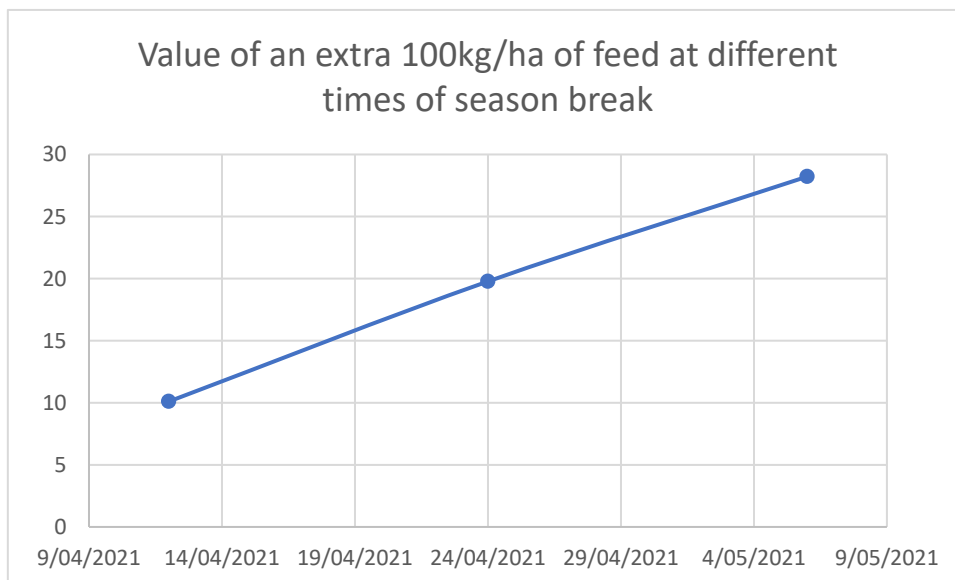


Figure 5: Value of an extra 100kg/ha of feed at different times of season break.