Profitability of sheep

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Is grain really better for your bottom line?

Ashley Herbert, Farm Management Consultant, Agrarian Management

Farm profitability will vary over time, between enterprises and between regions. Historical and projected gross margins for sheep and grain enterprises in the two main growing regions of Western Australia, the Cereal Sheep Zone (CSZ) and the High Rainfall Zone (HRZ) were examined. More in-depth investigation was performed for four different sheep enterprises in the HRZ.

### Enterprise Description

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Merino</td>
<td>Self- replacing Merino flock.</td>
</tr>
<tr>
<td>2. Prime lamb</td>
<td>100% Merino ewe flock joined to terminal sire.</td>
</tr>
<tr>
<td>3. Merino 30% XB</td>
<td>Self- replacing Merino flock with 30% ewes joined to a terminal sire.</td>
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</tbody>
</table>

#### Sheep enterprise comparison in the High Rainfall Zone

The profitability of four different sheep enterprises was compared in the HRZ of WA.

The difference in profitability between Merino, Merino 30% XB and Non-shearing is small.

Non-shearing enterprises require a high lambing rate of close to 140% to compensate for the absence of wool income. These lambing rates are not always easily achieved.

### Points to note:

1. Variation between individual farms within each enterprise is significant and may eclipse any difference between livestock enterprises.
2. Management is a greater profit driver than type of enterprise, as with appropriate management each enterprise can perform equally well.
3. There is no “most profitable sheep enterprise”.
4. The biggest driver of profitability is stocking rate.

### Table 1 Projected gross margins for a range of sheep enterprises for 2016

<table>
<thead>
<tr>
<th></th>
<th>Merino</th>
<th>Prime lamb</th>
<th>Merino 30% XB</th>
<th>Non-shearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocking rate (DSE/ha)</td>
<td>10.5</td>
<td>8.4</td>
<td>10.0</td>
<td>8.4</td>
</tr>
<tr>
<td>Wool income</td>
<td>$403</td>
<td>$263</td>
<td>$366</td>
<td>$0</td>
</tr>
<tr>
<td>Livestock trading profit</td>
<td>$270</td>
<td>$407</td>
<td>$310</td>
<td>$542</td>
</tr>
<tr>
<td>Total income</td>
<td>$673</td>
<td>$670</td>
<td>$676</td>
<td>$542</td>
</tr>
<tr>
<td>Costs</td>
<td>$235</td>
<td>$198</td>
<td>$224</td>
<td>$124</td>
</tr>
<tr>
<td>Gross margin</td>
<td>$438</td>
<td>$472</td>
<td>$452</td>
<td>$418</td>
</tr>
<tr>
<td>($/DSE)</td>
<td>$42</td>
<td>$56</td>
<td>$44</td>
<td>$48</td>
</tr>
</tbody>
</table>

- The prime lamb enterprise is significantly more profitable than the typical Merino flock ($594/ha vs $438/ha)
  - However this is only true if stocking rate, lambing rate and sale price are the same.
- Prime lamb enterprises with 20% lower stocking rate (10.5 to 8.4 DSE/ha) due to earlier lambing have a reduced gross margin, but it is still 10% more profitable than a pure Merino flock.
  - Other considerations include reduced replacements with higher losses, reduced wool cut and broader fibre diameter lowering fleece value.
Comparison of Cereal Sheep Zone to High Rainfall Zone

Similarities
- Gross margins are expected to be above average in both zones.
- Canola continues to be the most profitable grain enterprise in both zones.
- The gross margin for sheep is approximately 50% above the medium term average in both zones.

Differences
- There is a higher level of crop yield variation between years in the CSZ compared to the HRZ.
- The difference in gross margin between crop and sheep is higher in CSZ compared to HRZ.
  (although this difference is exaggerated by the extremes in crop profitability in 2013 in the CSZ and 2015 in the HRZ).
- The gross margin for sheep is variable between years in HRZ but more stable in CSZ.

Cereal Sheep Zone

Points to note:
- The yield for cereal grain is consistently higher than for canola.
- The average crop gross margin ($234/ha) is higher than the sheep gross margin ($102/ha).
- The sheep gross margin is relatively stable between years.

High Rainfall Zone

Points to note:
- The yield for cereal grains is consistently higher than for canola.
- The average crop gross margin ($370/ha) is higher than the sheep gross margin ($295/ha).
- The sheep gross margin is variable between years.

Comparison of gross margins between enterprises in the HRZ

Gross margin variations in High Rainfall Zone for individual farms highlights that the difference between sheep versus grain is smaller than the difference between individual farm profitability.

There is more variation in farm profitability in ‘good’ years.
The cost of getting back into sheep

Paul Omodei, Planfarm Pty Ltd

Due to significant increases in the profitability of sheep enterprises, many producers are asking what is the most useful way to increase their sheep enterprise or to establish a sheep enterprise. Several scenarios on capital investment and time frames are explored using a model farm based on three years of benchmark data.

Points to note:

- The high capital option of purchasing 1.5 year old (yo) replacement ewes has the shortest break even period.
- Increasing lambing percentage has a greater impact on long term profitability than purchasing 1.5yo replacement ewes.
- The low cost option of retaining 6.5yo ewes for another year of lambing is not a feasible method of doubling flock size.
- Increasing ewe lamb retention is a simple method; however it has a high debt and long payback period to break even.
- Break even and a stable flock structure can be reached in just seven years by producers purchasing a new flock.

Most cost effective option – Increasing lambing from 90-105%

The most cost effective option is increasing lambing percentage. This may also be a viable option for many producers who regularly achieve lambing percentages above 90%. Producers interested in increasing their lambing percentage can find more information at the Lifetime Ewe Management project.

Importantly, this option is only effective if the same number of lambs per hectare is sold. If ewe lamb replacements were maintained at 54% then the flock structure would not stabilise for more than 20 years.

<table>
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<tr>
<th>Description</th>
<th>Considerations</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing lambing from 90% to 105%</td>
<td>• Maximum debt of $33 592 (Year 3) &lt;br&gt;• Payback period of seven years &lt;br&gt;• Stable flock structure in 7-8 years &lt;br&gt;• Increased management requirements</td>
<td>• Participation in the Lifetime Ewe Management course</td>
</tr>
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High capital option – Buying ewes in

Buying 1.5yo replacement ewes requires almost double the initial capital investment, however the payback period and the time to reach a stable flock structure is reduced when compared to the previous option. This is a good option for producers with the ability to service debts, and already operating at their particular maximum lambing percentage.

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<tr>
<td>Purchasing 1.5YO replacement ewes</td>
<td>• Maximum debt of $79 450 (Year 2) &lt;br&gt;• Payback period of six years &lt;br&gt;• Stable flock structure in 6-7 years &lt;br&gt;• 1.5yo Merino may not be available</td>
<td>• Need access to capital to support debt &lt;br&gt;• No change in management of flock</td>
</tr>
</tbody>
</table>

Note:

When comparing Scenario 1 and 2 flock expansion methods, increasing lambing % will increase the overall profitability of the farming operation ($/winter-grazed hectare (WGha)) once break-even has been reached, while purchasing 1.5yo ewes and maintaining prior production levels will not.
Low cost option – Retaining older ewes

The modelling showed that keeping ewes for an extra year beyond 6.5yo was a cheap and effective option for increasing the flock by 20-30%. However, in order to double the flock size the timeline was impractical at more than 20 years. Another important consideration with older ewes is the risk of reduced wool income and lower lambing percentages.

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| Retaining 6.5YO ewes for another year of lambing | • Maximum debt $24 497 (Year 1)  
• Payback period of 11 years  
• Time taken to increase numbers to 2000 head is >20 years | • Low-cost option for producers looking to increase their flock size by 20-30% |

Increased ewe lamb retention

Keeping more ewe lambs is a viable option if the producer is happy to reduce the turnoff of lambs over the flock stabilisation period of eight years. The reduced income from lamb production also has an impact on the debt level ($71 680) and the longer payback period of nine years.

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</table>
| Retaining a higher proportion of ewe lambs | • Maximum debt $71 682 (Year 5)  
• Longer payback period of nine years  
• Stable flock structure in eight years | • Option for producers willing to manage more non-producing hoggets and reduced lambs sold per ha |

*Flock established by retaining 90% of ewe lambs in year 1, 85% in years 2 and 3, 80% in years 4 and 5 and 60% in year 6 before stabilising at 54% ewe lamb retention.

New enterprise option

Starting a new sheep enterprise is a viable option for farmers currently cropping. Purchasing a new flock and spending on essential sheep infrastructure means the initial capital outlay is quite large at more than $200 000, however the payback period of seven years reflects the strong returns in sheep enterprises.

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<tr>
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</table>
| Purchasing 1.5YO ewes | • Maximum debt $206 439 (Year 2)  
• Payback period of seven years  
• Stable flock structure in seven years  
• Initial $73 000 investment for yards, fencing etc | • Suitable for producers looking to establish a new flock and with access to significant capital  
• Short payback period (7 years) |

*Flock established by purchasing ewes, a 20% cull rate and retention of a higher proportion of ewe lambs in years 1-3.

Assumptions for the analysis:

**Model farm:**
- Weaning rate of 90%
- All wethers sold as lambs
- Expansion stocking rate of 8.97 DSE/WGha
- An initial $25 000 investment for all expansion scenarios
- Ewes are mated five times and culled at 6.5yo

**Model costs:**
- Replacement rams cost $800 and ewes $120
- Interest rate of 6%

**Model ewe:**
- Average lambing for maidens is 75% and for 3-6yo 95%
- 54% ewe lambs retained each year
- Flock mortality of 5%
- Pasture costs are $42.15/WGha
Opportunities for sheep enterprise expansion

Greg Kirk & Paul Omodei, Planfarm Pty Ltd

Expanding the sheep enterprise is looking more financially attractive, with current margins for sheep matching or exceeding crop margins in some regions of Western Australia.

In this study, historical financial and production data, and interviews with top sheep producers, were used to identify opportunities for producers to expand their sheep enterprise.

Financial analysis of sheep and cropping enterprises in the wool belt and cereal-sheep zone

The past financial performance and relative productivity of 350 farm businesses, focusing on those located in the wool belt (H4) and the cereal-sheep zone (L4 and M4), were analysed across the 2011-2015 period. This was a time period considered to broadly reflect the seasonal and market conditions regularly encountered in Western Australia. The analysis of each region aimed to discover what was the overall average farm financial performance and what was the relative contribution of the sheep and cropping enterprises (Figure 5).

Figure 5 Average crop and sheep margins $ per hectare for the L4, M4, and H4 for 2011-2015

During this period, crop margins were substantially higher than sheep margins on average. However, relatively small changes in crop and sheep income could switch margins in favour of sheep in the H4 and M4 regions. Crop margins are a lot more volatile than sheep margins across all the regions, being far more responsive to seasonal conditions. Sheep and wool production tend to be more stable, with the most profitable years being determined less by seasonal conditions and more by high sheep and wool prices.

At present prices, the margin differentials between crop and sheep are favouring sheep expansion in the wool belt and western parts of the cereal-sheep zone. Sheep margins can equal cropping margins if the average grain prices fall by only 13%, 18% and 21% in the H4, M4 and L4 regions respectively. APW at $245/t FIS is 17% below the 2011-2015 average price of $295/t FIS.

Increasing sheep numbers through reduced cropping

It is feasible to increase sheep numbers by reducing cropping areas when the lowest yielding crop paddocks are moved back to pasture. This improves the average quality of the cropping paddocks and of the pasture paddocks, and provides an opportunity to increase stocking rates.

Key opportunities

- The improved margins for sheep enterprises may encourage producers to increase sheep numbers, particularly when combined with the benefits of a mixed farming operation such as weed control.
- Producers in the wool belt have the greatest opportunity to increase sheep numbers due to current flock sizes. They are also more likely to be at the forefront of driving efficiencies and profitability through investment in new management technologies.
- There is a production gap between wool belt and low rainfall sheep producers highlighting an opportunity for low rainfall producers to improve their sheep productivity.
- Reducing cropping areas to increase sheep numbers is a feasible strategy.

Cereal zone (L4 and M4)

In the cereal zone, the major management decisions revolve around cropping, which can have negative impacts on the sheep enterprise. However, the sheep enterprise can be used to increase overall profitability by utilising land which would otherwise be
unproductive, and utilising stubbles and low quality feed grain.

**Wool belt (H4)**

In the wool belt the dominant land use is cropping, with 55% of arable land sown to crop each year. However, 95% of farms in the region run sheep, with average flock sizes larger than in the cereal zone regions. Producers in this region have the greatest opportunity to expand their sheep enterprise as small percentage changes in productivity via management, breeding or technology can produce significant changes in sheep numbers.

**Comparison of the cereal zone (L4 and M4) and the wool belt (H4)**

The comparison of relative productivity of sheep and cropping across the three regions revealed a sheep “production gap” in the lower rainfall cereal regions compared to H4 (Figure 6(a)). Producers in L4 and M4 were more efficient at converting rainfall into grain (Figure 6(b)) than rainfall into sheep products. This may represent opportunities to expand their sheep enterprises.

**Sheep producer survey results**

Twenty three top producers were interviewed about their management practices and intentions for the future. Participants included farmers from the top 50% of sheep producers, as measured against the Planfarm Bankwest benchmarks, and were spread across the cereal and wool zones. While sheep production was secondary to cropping, all of the producers acknowledged that the enterprises are complementary.

The key reasons producers gave for running sheep:

- Increased productivity (the use of non-arable land, labour utilisation, utilising low quality feed grain).
- Improved pastures and cropping (weed control and nitrogen for crops).
- Risk mitigation (spreading financial risk in the business, increased cash flow, exit strategies).

The average operation was 3593 effective hectares with 38% grazed and 59% cropped. Merino ewes were joined by all but two producers, who joined composites, with almost half also joining older ewes to a terminal sire. Lambing percentage was on average 97% with a joining period of 6 weeks and weaning age of 14 weeks. Producers are aiming at increasing sheep numbers by 5-10%, mainly by increasing lambing percentage or keeping more young ewes.

The producers had similar management strategies for sheep, including having long and short term breeding objectives, culling of dry ewes, early supplementary feeding, and monitoring ewe condition.

All producers assessed their sheep enterprise performance every year, mainly with financial benchmarking or productivity performance (lambs per hectare).

All producers considered the keys to making money in sheep are producing pasture to drive stocking rate and lambs per hectare, with a non-negotiable focus on animal husbandry and health. The producers conduct pasture improvement and proactively managed stocking rates to seasonal conditions.
23 top sheep producers have their say

Top two priorities in maximising returns:
- 76% – husbandry and health
- 57% – optimising stocking rate to the season

What determines flock structure?
- Flexibility
- Purpose (lamb or wool)
- Market focus

How to manage supplementary feeding:
- Anticipate feed gaps from prior seasons
- Supplementary feed sooner rather than later
- Proactive in maintaining Condition Score

Breeding strategy:
- 81% have breeding objectives
- Targeted ram purchases
- Specific goals
- 85% cull dry ewes

Most important tips for labour:
- 95% advised organisation and back-up plans
- 80% prioritised yards, laneways and shearing shed

Why producers run sheep:
- The ability to utilise non-arable area
- Weed control and nitrogen for crops
- Spreading the financial risk in the business
- Cash flow
- Labour utilisation

Biggest costs:
- Shearing
- Supplementary feeding
- >50% invested in capital in the last five years

Positive aspects to sheep:
- Financial safety
- Flexibility
- They like sheep and are good at sheep farming
- Integrates with cropping

Pastures:
- 90% conduct pasture improvement
- 68% re-sow pastures

What drives production?
- Stocking rate
- Animal health/nutrition
- Pasture production

How is risk considered?
- 90% managed risk, not controlled
- Animal health, welfare, stocking rate management specific to the season
- 95% had a detailed exit strategy for the livestock enterprise

Profit drivers:
- Pasture production (to increase stocking rate)
- Ewe management
- Lambs weaned per hectare

This publication is a summary of reports commissioned by the Department of Primary Industries and Regional Development’s Sheep Industry Business Innovation (SIBI) project. To view the full reports go to agric.wa.gov.au/contributors-to-profitable-sheep-businesses

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