Beef farms: thriving profits to expensive lifestyles

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Low wool prices in the last few years have stimulated interest in beef production in many areas of the State. Market sales at $500 and above for weaners sound attractive, but profitability of farms varies greatly. A BeefFarm Survey conducted by the Department of Agriculture has some interesting preliminary findings. Based on fairly modest returns for the operator’s time, some farms are actually losing rather than making money on their beef enterprise, although potential profits are sizeable with good management. Interestingly, the biggest farms are not always the most efficient.

Beef production can be a profitable enterprise in low, medium and high rainfall areas, but may have greatest potential for expansion in the medium rainfall zone between 500 and 800 mm annual rainfall.

BeefFarm is a joint initiative from the Beef Improvement Association of Western Australia, BIA (WA) and the Department of Agriculture. The aim is to survey 80 to 100 beef enterprises to determine which management practices lead to profitable production. In the past, benchmarking the industry has been difficult because of its diversity and the lifestyle-type objectives of some producers.

Primarily, BeefFarm was developed to provide individual beef producers with a system to assess the financial and physical performance of their enterprises. It uses data which all beef enterprises keep – mainly taxation records including annual livestock returns. The collected information has also been analysed as a result of producer requests, which has helped to identify management practices and outcomes common to the most profitable enterprises.

The 56 farms so far involved in the survey were drawn from the low rainfall (less than 500 mm, 11 properties, mainly Northam and Beverley), medium rainfall (500-800 mm, 12 properties from Boddington to Esperance) and high rainfall areas (more than 800 mm, 33 properties from Pinjarra to Denmark) of the agricultural region of Western Australia (Figure 1). The following results are preliminary, and more information is needed to confirm the trends observed.

Early results

Early results for the different rainfall areas are shown in Table 1. Not surprisingly, the highest gross returns were achieved in the high rainfall area, but profit per hectare was actually higher from the medium rainfall farms. Though preliminary, the gross margins and relative profitability of beef in medium rainfall areas look promising for expansion, in line with predictions made by the Beef Strategy Group.

Cattle numbers from the low rainfall areas indicate that these beef enterprises are a secondary source of income, but the high replacement rates show that cattle numbers are building steadily.
The very wide range of farm types and performance is highlighted in the survey. For example, the size of the beef grazing area over all farms ranged from 42 to 1400 hectares.

At this stage, most representation is from vealer producers grazing beef cattle at pasture (calves slaughtered at less than 12 months of age) in the high rainfall area. Their performance indicators are presented in Table 2, with the six most profitable and six least profitable farms (based on gross margin per hectare and profit per hectare) of the 21 surveyed represented for each parameter, to indicate the range of performance and allow some meaningful comparisons. Twelve farms were excluded from this analysis because they also ran studs, feedlots or traded cattle.

In the pasture-based enterprises, wide range in performance was evident. The most profitable six farms averaged gross margins of $303/ha compared with only $84/ha for the six least profitable and $196/ha for all farms in this group. Differences in profit per hectare were even more startling, ranging from a loss of $53/ha for the six least profitable to a profit of $150 for the six most profitable. Turn-off of beef per hectare grazed for the top six was also more than double that of the least profitable farms.

Features of top beef farms

The most profitable farms all used some form of either controlled or rotational grazing. All farmers identified their animals and kept breeding records including dates of mating and calving, and matching the calf with its dam. The calves produced were all crossbreds. Most producers kept records in a diary, although several used computers. Selection criteria in order of importance to producers purchasing bulls included the following: Estimated Breeding Values from BREEDPLAN figures, structural soundness, muscling, temperament, serving capacity, visual appraisal and scrotal circumference.

Factors considered when selecting replacement heifers included liveweight (size), performance of dam and the sire line. Usually heifers were mated to a bull of a different breed. Producers running the most profitable farms pregnancy-tested their female cattle, and culled first the empty cows, then those which had raised a poor calf, cows considered too old or with poor health or temperament. On average these producers used their bulls for 3.8 seasons before replacement.

All of these producers owned cattle weighing scales and used them for marketing cattle, heifer selection and checking heifer weights before mating. They also monitored calf weights through the year at strategic times (for example 100 and 200 days old).

Effects on margins and profits

Many producers ask whether farm size affects gross margin. No clear relationship was found, but the changes in profit with increased grazing area are interesting. Beef farms with less than 200 ha of grazing area have difficulty translating good gross margins into profit. This is mainly due to the cost of family labour and overheads which cannot be spread over more hectares for economies of size. Higher profits were generally realised on farms between 300 and 600 ha in herds still run by family labour (Figure 2). Beyond 600 ha the need for outside labour appeared to affect economies and profit was reduced, although the sample size was small.
### Table 1. BeefFarm survey results as averages for each of the rainfall regions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>High rainfall</th>
<th>Medium rainfall</th>
<th>Low rainfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms</td>
<td>33</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Gross margin/ha ($/ha)</td>
<td>209</td>
<td>151</td>
<td>73</td>
</tr>
<tr>
<td>Profit/ha ($/ha)</td>
<td>48</td>
<td>81</td>
<td>14</td>
</tr>
<tr>
<td>Area grazed (ha)</td>
<td>356</td>
<td>646</td>
<td>263</td>
</tr>
<tr>
<td>Total cattle</td>
<td>489</td>
<td>653</td>
<td>171</td>
</tr>
<tr>
<td>Stocking rate (beef breeding units/ha)</td>
<td>1.04</td>
<td>0.62</td>
<td>0.30</td>
</tr>
<tr>
<td>Calving percentage (%)</td>
<td>91</td>
<td>80</td>
<td>82</td>
</tr>
<tr>
<td>Replacement rate (%)</td>
<td>24</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Death rate (%)</td>
<td>1.4</td>
<td>1.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Hay/silage fed per mated female (kg DM)</td>
<td>1000</td>
<td>671</td>
<td>700</td>
</tr>
<tr>
<td>Hay/silage fed per kg carcase (kg DM)</td>
<td>4.0</td>
<td>4.5</td>
<td>10.2</td>
</tr>
<tr>
<td>Carcase sold/ha (kg/ha)</td>
<td>175</td>
<td>82</td>
<td>50</td>
</tr>
<tr>
<td>Carcase costs (c/kg)</td>
<td>218</td>
<td>172</td>
<td>246</td>
</tr>
<tr>
<td>Carcase returns gross (c/kg)</td>
<td>240</td>
<td>272</td>
<td>274</td>
</tr>
<tr>
<td>Average price ($/hd)</td>
<td>528</td>
<td>501</td>
<td>421</td>
</tr>
</tbody>
</table>

### Table 2. BeefFarm survey results for 21 vealer producers in the high rainfall area

<table>
<thead>
<tr>
<th>Parameter</th>
<th>All farms</th>
<th>Most profitable</th>
<th>Least profitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross margin/ha ($/ha)</td>
<td>196</td>
<td>303</td>
<td>84</td>
</tr>
<tr>
<td>Profit/ha ($/ha)</td>
<td>34</td>
<td>150</td>
<td>-53</td>
</tr>
<tr>
<td>Area grazed (ha)</td>
<td>339</td>
<td>321</td>
<td>309</td>
</tr>
<tr>
<td>Total cattle</td>
<td>497</td>
<td>544</td>
<td>398</td>
</tr>
<tr>
<td>Stocking rate (beef breeding units/ha)</td>
<td>1.01</td>
<td>1.23</td>
<td>0.76</td>
</tr>
<tr>
<td>Calving percentage (%)</td>
<td>84.5</td>
<td>82.0</td>
<td>84.4</td>
</tr>
<tr>
<td>Replacement rate (%)</td>
<td>29</td>
<td>34</td>
<td>25</td>
</tr>
<tr>
<td>Death rate (%)</td>
<td>1.4</td>
<td>1.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Hay/silage fed per mated female (kg DM)</td>
<td>984</td>
<td>975</td>
<td>1039</td>
</tr>
<tr>
<td>Hay/silage fed per kg carcase (kg DM)</td>
<td>5.0</td>
<td>3.5</td>
<td>7.9</td>
</tr>
<tr>
<td>Carcase sold/ha (kg/ha)</td>
<td>149</td>
<td>178</td>
<td>83</td>
</tr>
<tr>
<td>Carcase costs (c/kg)</td>
<td>213</td>
<td>185</td>
<td>266</td>
</tr>
<tr>
<td>Carcase returns gross (c/kg)</td>
<td>227</td>
<td>271</td>
<td>196</td>
</tr>
<tr>
<td>Average price ($/hd)</td>
<td>500</td>
<td>540</td>
<td>439</td>
</tr>
</tbody>
</table>
Gross margins tended to increase with stocking rate. For the analysis, stocking rate of all classes of cattle was standardised to breeding units (bu/ha) consisting of a lactating cow of 500 kg with a 250 kg vealer calf at foot (total liveweight 750 kg). The most profitable farms were stocked 22 per cent heavier than average and 62 per cent heavier than the least profitable farms. Higher stocking rates were translated into extra carcase weight turned off per hectare (see Figure 3). Producers were able to increase production with higher stocking rates while maintaining the quality of carcase produced, as reflected in prices received for their vealers.

Other features of the more profitable enterprises included both better pasture and livestock management. For instance, the most profitable properties were stocked more heavily without applying more phosphorous or nitrogenous fertiliser. However, they tended to use more potassium fertiliser, resulting in better pasture and higher (25 per cent more than average) hay and silage yields.

Another important feature associated with stocking rate was that extra profit was apparently achieved by better pasture use. Even at higher stocking rates 1.5 kg less hay or silage was used per kilogram of carcase sold, when inputs from the most profitable group of beef farms were compared with the average (Table 2).

Producers running the most profitable farms spent more dollars on animal husbandry including pregnancy testing, service capacity testing of bulls, vaccinations, drenches and other veterinary expenses. The end result of these recommended animal management practices was a 40 per cent lower death rate in cattle on the better farms compared with the least profitable.

Fertility of the beef herd is generally recognised as an important factor in profitability. So far, the percentage of females mated on the most profitable farms in the high rainfall vealer group which ultimately calve down on the property was less than the average (82 per cent compared with 84.5 per cent). We found that producers earning the most profit actually 'overmate' the number of females (especially replacement heifers) required on the farm then cull rigorously on pregnancy test. This ensures that all females running in the herd will give birth to and raise a good quality calf.

This is certainly a management option which works, though it requires careful planning and a commitment to pregnancy testing. In contrast, some farms in the lower profit category attempted to calve every female joined on the farm by extending the mating period to 12 weeks and beyond, with a consequent reduction in selection pressure.
for fertility. This may lead to a poorer stocking rate in the following year if pregnancy is not checked.

Interestingly, performance indicators which had no effect on gross margin were the area conserved as hay or silage, cost of purchased fodder, the amount/cost of reseeding pasture and the average price received per head of stock sold.

**Conclusions**

Already, the survey has highlighted the large variation in profitability of beef enterprises in the South-West of Western Australia. Many beef farms in the high rainfall area are potentially profitable, others are hampered by inadequate farm size which affects economies of scale, or they run beef cattle at stocking rates which do not fully use the pasture. When depreciation costs on existing plant and machinery, overheads and fair compensation for family labour are factored into the profit equation as in any business, even at $9 an hour, it is clear that profits are not high and perhaps are not the main motivation in running these farms. A number of producers emphasise the value they place on the lifestyle they lead. The question arises whether these lifestyles may be sustained at low levels of profitability.

BeefFarm is a useful tool to evaluate performance and has demonstrated the potential profits that may be made in an agricultural enterprise notable for its diversity and fragmentation. A number of producers have used results as a monitoring tool to keep track of their productivity and profit. This enables them to identify management areas which may need to change, then evaluate these changes.

As a direct result of producer requests, BeefFarm has been applied collectively to groups of beef enterprises. By collating individual farm information, management practices and outcomes, those common to the most profitable can be determined. Inter-farm comparison can be conducted at varying levels, either State-wide, region, local district or discussion group level.

Early results also indicate the potential profitability of beef cattle enterprises in the medium rainfall areas of the agricultural region of Western Australia. While these results are preliminary, BIA (WA) and Department of Agriculture personnel are confident that the main trends will be strengthened with more participants.

The importance of a business-like approach to beef production will also grow as individual producers track changes in profitability on a year-in year-out basis and link these changes to management decisions through BeefFarm. The program is currently being used to monitor the progress of five Beef Focus Farms set up to demonstrate improved pasture and livestock management on a farm scale and these will also be watched with interest.

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