

# The best way to use high-quality forages in central Queensland

With limited available high-quality forage such as perennial legume-grass pastures or annual forage crops, beef producers have to determine their best allocation. A recent study by the Department of Agriculture and Fisheries (DAF) on forage systems in central Queensland has assessed the most profitable way of incorporating high-quality forages into the whole-of-life steer growth path.

## Methodology

Herd models at the property and regional level were used to analyse whole-of-business productivity and profitability. Twenty-two growth paths (live-weight change over time) were investigated for steers from weaning to marketing. Steers grazed buffel grass with and without access to leucaena-grass pastures or forage oats for varying periods of time throughout their growth path. The production, economic and financial effect of each growth path was assessed by comparison to a baseline scenario, which produced finished slaughter steers (605 kg) from buffel-grass pastures. The relative profitability of marketing steers at feedlot entry (feed-on) weight (474 kg) instead of slaughter weights was also assessed. Over a 30-year investment period, the growth paths were applied within two beef enterprise types, namely:

- steer turnover enterprise
- breeding and finishing beef enterprise.

Each alternative growth path was modelled by starting the farm investment at the same baseline scenario (that is, a buffel-grass finishing system) and then changing to the alternative.

## Results

For both enterprises, the most profitable growth path scenario was grazing steers on leucaena-grass pastures until they reached feed-on weight (474 kg). Compared to the baseline scenario, this optimal growth path improved profitability by 121 per cent for the steer turnover enterprise and 37 per cent for the breeding and finishing enterprise, respectively. The purchase of additional breeders for the latter enterprise was required to optimise use of the leucaena-grass pastures immediately.



Steers grazing leucaena-grass pastures.

However, graziers need to carefully consider the consequences of implementing potentially highly profitable leucaena-grass growth paths too quickly, particularly if they involve significant operational changes and investment. While the seven most profitable growth paths for both enterprise types incorporated leucaena-grass pastures, these growth paths also increased peak deficit levels and financial risk to the business compared to buffel-grass-only production systems. The payback periods for the most profitable growth path were 8 and 14 years, for the steer turnover and the breeding and finishing enterprise types, respectively.



Steers grazing a forage oats crop.

All growth paths that incorporated forage oats resulted in lower economic and financial performance than comparable growth paths that incorporated leucaena. Furthermore, incorporating oats into buffel-grass-only growth paths always reduced profitability. Additionally, implementing forage oats into either enterprise type substantially increased peak deficit levels and financial risk.

These modelled findings do not indicate that beef enterprises that incorporate forage oats are unprofitable, only that they are likely to be less profitable than the alternative buffel-grass-only beef enterprise. In our analysis, we did not account for the years likely to be unsuitable for planting oats (30 per cent of years), which would further reduce profitability of these growth path scenarios, despite oats enabling a younger age of turn-off and despite filling the apparent 'feed gap' resulting from the poor quality of available forage over the winter dry season.

It is important to note that in this study there was no relationship between change in profit and the number of extra weaners produced or the amount of extra beef produced per hectare. The implication is that just because a growth path produces more beef, it is not necessarily more profitable.

The production of slaughter-weight steers off good-quality buffel pastures has been seen as the most profitable beef production system for many central Queensland beef producers. The recent change in the price differential between younger and older steers has largely not been included in this analysis, but it still shows that shifting to a younger age of turn-off is likely to be more profitable when steer nutrition is significantly improved from weaning.

This modelled study should be considered as a way to better understand the factors that are important in the decision-making process. However, the relative and absolute value of alternative investment strategies varies significantly between beef enterprises.

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Buffel-grass pasture typical of central Queensland.