

# The economics of molasses production feeding in the Northern Gulf region of Queensland

E. Moir<sup>A,B</sup>, L. Perry<sup>A</sup>, F. Chudleigh<sup>A</sup> and M. K. Bowen<sup>A</sup>

<sup>A</sup>Department of Agriculture and Fisheries, QLD 4824 Australia.

<sup>B</sup>Email: eloise.moir@daf.qld.gov.au

The major challenge facing beef property managers in the Northern Gulf region of Qld is the inherently low productivity of the region (70-110 kg/head annual steer LW gain) and poor profitability (Rolfe *et al.* 2016). Nutritional supplements to increase steer growth rates and reduce age of turnoff, when used, are commonly based on molasses due to its accessibility. However, there has been a lack of economic analysis to properly assess the profitability of molasses production feeding.

Herd budgeting software was used to model the profitability of feeding a cohort of yearling steers annually to reduce their age of turnoff on a representative property in the Northern Gulf (30,000 ha; 1,500 AE). The 17% of steers below specifications for the live export market (< 320 kg LW) and which were not sold as yearlings (i.e. the 'tail') were fed a molasses production mix (4% urea, 10% protein meal; \$363/t on-property) in the paddock for 90 days from mid-June. On average, 37 steers p.a. were fed consuming 1.2% of LW/day (DM basis) resulting in 0.7 kg/hd/day LW gain and a final LW in the paddock at the end of feeding of 369 kg. The major associated capital costs were feeding troughs and a mechanical mixer with 20% of depreciation costs over 15 years allocated to this enterprise. Feeding costs included allowances for labour, depreciation and maintenance of equipment, transport and cattle selling costs. Comparison was made by analysing the difference in productivity and profitability, at the property level over 30 years, between feeding the steer tail and not feeding the steer tail. When the steer tail was not fed molasses the sale date was May of the following year (cf. mid-September) at 414 kg LW. The herd size when the steer tail was fed molasses was adjusted to accommodate the reduced grazing period on the property and to maintain the same grazing pressure for both scenarios. Long term cattle prices were used (weighted average over January 2006-February 2018) and cattle were valued going into the feeding operation at their market value less selling costs to accurately reflect the opportunity cost of steers to the feeding exercise.

The total feed and other costs of molasses production feeding was \$299/head. At long-term cattle prices the gross margin was -\$87/head fed. The results were most sensitive to the difference in market value/kg of steers at the commencement of feeding and at the conclusion of feeding (Table 1), and the price of the production molasses mix.

**Table 1. Sensitivity analysis of the gross margin per steer fed a molasses production mix**

Expected value of steers at saleyards prior to feeding (\$/kg LW)	Expected sale price of steers at the saleyards after feeding (\$/kg LW)					
	\$2.00	\$2.20	\$2.40	\$2.60	\$2.80	\$3.00
\$2.20	-\$155	-\$90	-\$25	\$40	\$105	\$170
\$2.40	-\$217	-\$152	-\$87	-\$22	\$43	\$108
\$2.60	-\$279	-\$214	-\$149	-\$84	-\$19	\$47
\$3.00	-\$403	-\$338	-\$273	-\$208	-\$143	-\$77

Market conditions that favour at least 40 c/kg or more increase in value of cattle between the start of feeding and their sale would be necessary to regularly create a positive gross margin. This is independent of the starting price/kg for steers with higher starting values still requiring at least the 40 c/kg premium at time of sale. Based on long-term cattle price data, this indicates that there is likely to be limited opportunity for managers to make a profit from molasses production feeding. The profitability of the property over 30 years was reduced by \$5,900 p.a. as a result of molasses feeding. The strategy also substantially increased peak deficit levels (-\$252,500) and financial risk and did not generate sufficient returns to repay additional borrowings over 30 years. The increase in breeders mated (17 p.a.) under the molasses feeding scenario was inadequate to offset the funds lost in the feeding exercise. These results highlight the importance of conducting an economic assessment using appropriate methodology prior to undertaking any molasses production feeding strategy. Spreadsheet tools are available that can be used for this purpose (Bowen *et al.* 2019).

## References

Bowen MK, Chudleigh F, Rolfe JW, English B (2019) 'Northern Gulf beef production systems. Preparing for, responding to, and recovering from drought.' (The State of Queensland, Department of Agriculture and Fisheries, Queensland: Brisbane) Available at <https://futurebeef.com.au/projects/improving-profitability-and-resilience-of-beef-and-sheep-businesses-in-queensland-preparing-for-responding-to-and-recovering-from-drought/> [Accessed 12 February 2020].  
Rolfe JW, Larard AE, English BH, Hegarty ES, McGrath TB, Gobius NR, De Faveri J, Srhoj JR, Digby MJ, Musgrove RJ (2016) *The Rangeland Journal*. **38**, 261-272.

*Special thanks to the Drought and Climate Adaptation Program for funding this work.*

