

# Increasing age of steer turnoff improves the profitability of beef businesses in northern Australia

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Northern Australian beef properties are commonly geared towards breeding operations turning off weaner steers, particularly in regions of marginal productivity. However, the optimum age of male turnoff depends on breeder productivity, steer performance, available markets, and relative price of steer beef and female beef (Bowen *et al.* 2019). There has been a lack of recent economic analysis to properly assess the profitability of alternative ages of male turnoff for regions in northern Australia. The objective of this study was to determine the optimum age of male turnoff for the northern Mitchell grass downs area of north-west Queensland (ND) as an example of a region with highly variable rainfall (~335-454 mm/yr), and a production systems based on predominantly native, tropical (C4) grasses (*Astrebla* spp.). Grazing businesses in the ND have market options which include live export steer (320-350 kg LW), feed-on steer (450-480 kg LW), or slaughter steer (> 580+ kg LW).

Herd and economic modelling software (Holmes *et al.* 2017) was used to assess the effect of alternative steer sale ages on the profitability of an example property (16,000 ha; 2,000 AE) in the ND. Initially, the effect on herd gross margin of selling steers at alternative ages (restructuring the herd to maintain equivalent grazing pressure) was determined using average prices for the last 11 years (July 2008–June 2019). Secondly, a herd currently selling weaner steers was modelled as a base for conversion to the optimum age of turnoff to estimate impacts on profit and peak deficit, at the property level, over 30 years.

The potential average liveweight (and net on-farm price/kg liveweight) of the steers at 6 (weaning) and 19, 31 and 43 months old was estimated as: 181 kg (\$1.92/kg), 333 kg (\$1.89/kg), 474 kg (\$1.82/kg) and 615 kg (\$1.77/kg), respectively (Bowen *et al.*, 2020). The herd gross margin less interest on livestock capital was greatest for turnoff at 31 months and least for weaner turnoff (Table 1). Implementing the change from weaner to 31-month old steer production added ca. \$71,100/annum profit, at the property level, over 30 years. Furthermore, drought resilience was improved due to a reduction in the size of the breeder herd relative to dry stock at equivalent grazing pressure. However, converting from weaner steer production to 31 month-old steer production produced a substantial peak deficit, -\$122,100 in Year 2, and would provide a barrier to management change that may not be overcome by some properties.

**Table 1. Herd gross margin comparison for alternative ages of steer turnoff in the Northern Downs**

| Parameter                                                 | Age of steer turnoff  |           |           |            |
|-----------------------------------------------------------|-----------------------|-----------|-----------|------------|
|                                                           | 6 months<br>(weaners) | 19 months | 31 months | 43 months  |
| Total cattle to achieve 2,000 AE                          | 1,846                 | 2,043     | 2,116     | 2,079      |
| Total steers and bullocks sold                            | 429                   | 379       | 326       | 274        |
| Total breeders mated and kept                             | 962                   | 864       | 755       | 643        |
| Maximum bullock turnoff age                               | 0                     | 1         | 2         | 3          |
| Average steer or bullock price                            | \$347.52              | \$629.37  | \$862.68  | \$1,088.55 |
| Herd gross margin less interest on livestock capital (GM) | \$301,849             | \$359,683 | \$376,772 | \$366,993  |
| GM difference to Optimum (31 months)                      | -\$74,923             | -\$17,089 | Optimum   | -\$9,779   |

The results for this region, indicating that weaner steer production is the least profitable age of turnoff, are in accord with results for other regions across Northern Australia (e.g. Bowen *et al.* 2019). This is, in part, due to low breeder efficiency (65% weaning rate) as well as the relatively higher value of steer compared to female beef.

## References

- Bowen MK, Chudleigh F, Rolfe JW, English B (2020) 'Northern Downs beef production systems.' (The State of Queensland, Department of Agriculture and Fisheries, Queensland: Brisbane) <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].
- Holmes WE, Chudleigh F and Simpson G (2017) <https://www.daf.qld.gov.au/business-priorities/agriculture/animals/beef/breedcow-dynama> [Accessed 10 February 2020].

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