Northern Downs – Factsheet 2: Optimising the age of steer turnoff

The economic impact of a range of management strategies and technologies was analysed by Queensland's Department of Primary Industries to identify potential strategies that could make grazing businesses in the Northern Downs more profitable and drought resilient. The optimum age of steer turnoff is influenced by the relative profitability of breeders and steers, which is a function of breeder productivity, steer performance, available markets, and the relative price of steer and female cattle.

Key finding

Shifting from turning off weaner steers to turning off older steers at 31 months of age increased profitability each year by $71,100.

Age of steer turnoff strategies

The representative property and herd outlined in *Northern Downs – Factsheet 1* was used to compare alternative steer sale ages based on a property grazing 2,000 adult equivalents for each strategy. The sale weights and on-property net sale prices used in the analysis are shown in the table on the right. Average long-term cattle prices from 2008 to 2019 for a range of markets open to Northern Downs producers (saleyards, abattoir and live export) were used for the evaluation net of selling costs (freight, fees, levies, etc.).

Age of steer turnoff	6 months	19 months	31 months	43 months
Sale weight	181 kg	333 kg	474 kg	615 kg
Net sale price	$1.92/kg	$1.89/kg	$1.82/kg	$1.77/kg

The table on the right compares production, sales and gross margins for each age of steer turnoff. Turning off older steers requires less breeders to maintain stocking rate and carrying capacity, which can decrease drought risk due to the greater nutritional demands and expenses of breeders. A weaner steer enterprise may have 50% more calving and lactating females during a drought than an enterprise selling slaughter weight steers. While turning off older steers decreased the number of breeders mated and cattle sold, the price received for each steer increased by more, so net cattle sales revenue increased. Bull replacement costs were lower due to less breeders mated. Turning off steers at 31 months produced the highest sales revenue and herd gross margin for the representative property even though 284 less breeders were mated.

Production and sales	6 months	19 months	31 months	43 months
Adult equivalents	2,000	2,000	2,000	2,000
Cattle carried	1,846	2,043	2,116	2,079
Breeders mated	1,319	1,185	1,035	881
Calves weaned	857	770	673	573
% of females sold	47.2%	47.6%	47.9%	48.3%
Cows and heifers sold	383	344	300	256
Steers sold	429	379	326	274
Steer price ($/head)	$348	$629	$863	$1,089
Net cattle sales	$417,221	$479,651	$491,992	$477,067
Variable costs (ex bulls)	$38,718	$44,421	$38,803	$33,034
Bull replacement	$21,677	$19,472	$17,010	$14,482
Herd gross margin	**$356,826**	**$415,757**	**$436,179**	**$429,551**

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The table below shows that the amount of capital producers have tied up in the herd (e.g. unsold cattle) is generally greater when turning off older steers. Therefore, to compare the options fairly, the amount of money the additional 'tied up' capital could have earnt if invested elsewhere needs to be subtracted from the gross margin. These foregone earnings (or interest) were calculated as 5% of the tied up capital. Subtracting the foregone earnings identified that turning off 31 month old steers provided the highest 'gross margin minus interest', followed by 43 month old steers.

Herd value	**6 months**	**19 months**	**31 months**	**43 months**
Amount of tied up capital in herd (unsold cattle)	$1,099,545	$1,121,494	$1,188,146	$1,251,164
Foregone earnings (or interest) on tied up capital	$54,977	$56,075	$59,407	$62,558
Gross margin minus interest	**$301,849**	**$359,683**	**$376,772**	**$366,993**

Was turning off older steers profitable?

An investment analysis was undertaken to evaluate the effect on cash flow and profitability over 30 years when changing from a weaner steer sale age to sale at 31 months. It was assumed that no upfront investment was needed to turn off older steers.

The results identified that turning off steers at 31 months increased profitability of the representative property each year by $71,100 (annualised net present value) relative to turning off weaner steers. Holding on to the initial cohort of weaner steers for just over two years decreased cattle sales and the business had a peak cash flow deficit in the second year of -$122,100. Full payback occurred in the third year after the initial changes were implemented.

The peak cash flow deficit incurred when changing to older steer turn-off ages could be an impediment to some producers. Please note, these results are specific to the assumptions used for the analysis.

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