

Infrastructure to improve beef business outcomes in the Queensland Gulf

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Introduction

There are significant economic and environmental issues impacting on the short and long term viability of family-run breeding enterprises in the Queensland Gulf. Falling cattle prices and increased business costs threaten the social and financial well-being of many beef producers. Set stocking and overgrazing combine to reduce native 3P (productive, palatable and perennial) grass frequency and herd productivity. The Ryan family on Greenhills Station at Georgetown in the Queensland Gulf embarked on a 5 year water and fencing infrastructure development program aiming to improve pasture utilisation, land condition and long term carrying capacity.

Infrastructure development

Fencing and water

During 2009, both fencing and water improvements were implemented on Greenhills Station. An existing paddock of 11,475 ha was divided into three paddocks of 4307 ha, 4710 ha and 1958 ha through the use of single-strand electric fencing. This sub-division allowed the Ryan's to change their grazing management to include a wet season spell for one paddock each year. New water infrastructure was installed in the newly formed paddocks. The water infrastructure aimed to improve stock access to water and grazing distribution through two new bores and reticulation to five water troughs in the newly formed paddocks.

Herd management

Cattle were previously managed under a continuous grazing system and lack of paddock infrastructure meant that breeders, heifers and young steers were run as a single mob. Only weaners and older bullocks were managed separately. Despite Greenhills being conservatively stocked, the continuous grazing system resulted in patch grazing and poor pasture utilisation and subsequent decline in desirable pasture species. Cattle were walking up to 4 km to water, increasing the grazing pressure around water points.

Through the use of fencing and increased watering points, the Ryan family has been able to introduce a grazing rotation into the newly formed paddocks on the southern half of the property with 60% of this country now spelled each year. Cattle are moved twice per year, with the

spelled paddock having six months rest period, including the wet season.

In order to improve their heifer management, NLIS technology combined with weigh-scales is now being used to record individual heifer weights, beginning at weaning. Breeders are currently being pregnancy tested for empties only and controlled mating is utilised to reduce the number of out of season calves, with bulls put into breeder paddocks in mid January and pulled out in June.

In 2009, 10 photo monitoring sites (one site per land type) were introduced. These sites were used to assess land condition, pasture quality and include indicators for groundcover, species composition, pasture yield, soil condition and weed presence. The photo monitoring sites have also been used to assess the effects of the rotational grazing system on pasture composition. Early results indicate that 3P (perennial, productive, palatable) species, such as giant speargrass and bluegrass, are returning to the spelled/rotated paddocks. As a result of the rotational grazing system, the Ryan's have lifted the carrying capacity in recent years.

Business Performance

BreedCow modelling showed that over the five years from 2007 to 2011, there was an overall increase of 14% in gross margin, resulting from increased carrying capacities and overall number of breeders mated. The increased gross margin was achieved through the fencing and water infrastructure development and wet season spelling programs, which led to improved pasture utilisation and quality. Female death rates have declined due to improved herd management practices (less out of season calves and better nutrition), which has resulted in higher female sales. Higher turnoff numbers for steers has also been achieved. Average prices received for cattle did not significantly differ over the five year period, showing that turnoff numbers and higher liveweight was the main driver of improved profitability.

Greenhouse gas emissions

Greenhouse gas modelling showed an overall increase in carbon emissions (due to higher numbers of cattle in 2011, compared to 2007). However, overall efficiency (t CO₂e/t LW sold) improved, showing that young animals have greater liveweight gains and lower age of turnoff in 2011 compared to 2007 (Table 1).

Table 1. Greenhouse gas modelling comparison.

	2007	2011
Total livestock emissions (t CO ₂)	3836	4381
per hectare (t CO ₂ e/Ha)	0.15	0.17
per AE (t CO ₂ e/AE)	1.60	1.59
per liveweight (t CO ₂ e/t LW sold)	17.14	14.22

Conclusion

Through the infrastructure development program, the Ryan family has been able to increase their productivity and profitability, and improve land condition in the newly formed paddocks on Greenhills. Productivity gains have also led to a more efficient herd in terms of greenhouse gas emissions. Overall, the investment in infrastructure

has allowed the Ryan's to boost their herd performance and remain a resilient beef business in the Queensland Gulf region.

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