SoilsForLife

Colodan Case Study

ECONOMIC REPORT | 2021

PREPARED BY RSM

FARM FACTS

ENTERPRISE: Beef Cattle, Carbon Forestry, Saw log production

PROPERTY SIZE: 4660 ha

LOCATION: Approximately 45 km East of Monto, Queensland.

Lat. 24°56'53.30"S
Long. 150°41'2.94"E

ANNUAL RAINFALL: 621mm

ELEVATION: 300-350m

AGRO-CLIMATIC REGION: Sub-tropical sub-humid

SOILS: Predominantly Rudosols, Sodosols, Chromosols, Dermosols and Vertosols

SOCIAL STRUCTURE: Family Farm – decisions made between family members

MOTIVATION FOR CHANGE: Improve social, environmental and economic resilience to drought to keep the Henderson family legacy alive for the next generation.

INNOVATIONS:

- Grazing land now includes integrated carbon farming and forestry regime
- Innovative family culture supported intergenerational transformation

KEY RESULTS:

- Increased revenue consistently performing well above the average farm
- Improved tree-grass balance resulting in resilience to major climate events
- A happy and stable home life, optimistic about the future of the enterprise

Executive Summary

Colodan is a 4,600 hectare grazing property located in North Burnett in Queensland. While Colodan primarily specialises in cattle breeding, native forestry and carbon farming are also conducted on the property. The Henderson family have managed the property since 1930s and it is currently managed by James and Kylie. Colodan is the primary property but James and Kylie also manage three additional blocks of land – Monogorilby (432 Ha), Valley Veiw (160 Ha) and Ruby Ellen (288 Ha). The total area currently under management is 5,480 Ha.

James and Kylie's primary goals on Colodan are to improve the productivity and sustainability of the property. This is achieved by utilising multiple regenerative practices. The use of a rotational grazing system means livestock are rotated on a time-controlled basis in order to maximise capacity utilisation. The rotational grazing system has increased income productivity per hectare beyond that of the Average Farm as the quality and resilience of pastures has improved whilst matching available feed to cattle based on their condition scores. This allows for healthier stock and more effective management of cattle sales.

James and Kylie have also focused on avoiding broad scale tree clearing activities while also implementing practices to repopulate & regenerate forest areas. Through these regenerative practices, James & Kylie have been able to participate in carbon farming projects on Colodan. This involves implementing practices that are known to improve the rate at which carbon dioxide is removed from the atmosphere and converted to plant material and soil organic matter. James and Kylie have earnt Australian Carbon Credit Units (ACCUs) which can be sold to provide supplemental income on Colodan.

To evaluate the success of these methods in achieving the primary goals identified above, we have compared the financial information provided by James and Kylie to relevant industry benchmarks – the 'Average Farm'. The benchmark used throughout the report is sourced from MLA Farm Survey Data.

The introduction of these regenerative practices has resulted in profit and gross margins for Colodan consistently exceeding those of the Average Farm. Colodan is consistently more profitable in terms of cattle sales and, on average, exceeds the profit gross ratio of the Average Farm by 128.31%.

Our analysis has resulted in numerous positive insights about the methods employed at Colodan. We have found that:

- The introduction of regenerative practices has increased production levels significantly, leading to an increase in income, exceeding that of the Average Farm.
- Despite fluctuations in cattle prices and large changes in seasonality and market conditions, from 2009 – 2019 Colodan achieves on average 72% higher revenue when compared to the Average Farm.
- Colodan's significantly higher revenue is indicative of the higher price James and Kylie are receiving.
- The combination of regenerative practices has decreased the property's reliance on fertilisers, herbicides, and pesticides, which subsequently reduced the fertilizer expense relative to the Average Farm and increased growth of native vegetation.
- Despite receiving higher than average rainfall compared to the Average Farm, when we compare results per 100mm of rainfall, Colodan performs consistently higher than the Average Farm.

The improved production and revenue combined with reduced expenses resulting from James and Kylie's rotational grazing systems and forestry practices has allowed Colodan to be highly successful and sustainable compared to the Average Farm.

Introduction

Colodan is located in North Burnett, Queensland. The farm is a 4,600 hectare property that specialises in beef cattle breeding, native forestry, and carbon farming. It has been owned and operated by the Henderson family since the 1930s and is currently managed by James and Kylie Henderson. Colodan is the primary property but James and Kylie also manage three additional blocks of land – Monogorilby (432 Ha), Valley Veiw (160 Ha) and Ruby Ellen (288 Ha). The total area currently under management is 5,480 Ha.

Prompted by the millennial drought and 10 years of bad seasons, James and Kylie implemented several regenerative practices in order to improve the productivity and sustainability of the property. Specifically, they implemented a rotational grazing system and have placed more emphasis on their 'cow condition scores' and drought preparation. Rather than simply viewing these changes as 'regenerative agricultural practices', James and Kylie consider them necessary management actions to run a successful business.

Report Data Sources:

Industry Benchmarks – MLA Farm Survey Data (http://apps.agriculture.gov.au/mla/)

Financial Data – James Henderson

Seasonal Conditions and Rainfall Data – Australian Government Bureau of Meteorology

Industry Insights – Published Industry Reports by:

- Meat and Livestock Australia
- Australian Bureau of Agricultural and Resource Economics 2019

The grazing management of Colodan has transitioned from a long period of using conventional management practices such as set stocking, to a rotational grazing system. This implementation seeks to optimise the grazing capacity of the property's pastures.

James and Kylie have moved away from the practice of clearing trees to maximise the land available for grazing (which is the dominant practice in the area) and implemented sustainable practices to establish permanent native forest areas and avoid further tree clearing. This has enabled the soil structure and fertility to improve and has led to healthier soils, vegetation, and animals.

James and Kylie also participate in carbon farming projects. This means that they implement these changes which help reduce Greenhouse Gas emissions and store carbon in vegetation, specifically Colodan's trees. Through the carbon farming projects (Human Induced Regeneration and Avoided Clearing), James and Kylie have earnt Australian Carbon Credit Units (ACCUs). A number of these ACCUs were sold in 2019 and 2020 to provide supplemental income for Colodan. One ACCU permits the buyer to compensate an equivalent of 1 ton of carbon dioxide and is valued at between $17 and $18 as of March 2021.

This economic report illustrates the positive effects that regenerative practices have had on the profitability, productivity, and natural capital of Colodan. To do this, we have compared current financial and production figures to historical figures and relevant industry benchmarks.

Report Methodology

For the sake of privacy, the data throughout this economic report has been 'de-identified' and we have used indexes to illustrate relative performance. That is, the data has been reported so that it does not represent the owner's actual financial position, rather it highlights the proportional difference between farm businesses and the industry benchmark. To do this, the benchmark figure is set to 100 at the start of the study period. Where two datasets are compared, we index both sets of data to the benchmark data. All data in this analysis is presented on the basis of the financial year.

Benchmarking

In order to illustrate the success of the Colodan enterprise, we have compared their financials and productivity data to relevant industry benchmarks. In particular, we refer to the 'Average Farm' as the main indicator for our analysis.

For this Economic Report, unless an exception is specifically noted, the Average Farm refers to a Specialist Beef Farm located in a Wheat-Sheep climate (as defined by the Department of Agriculture and Water Resources). The benchmark data for the Average Farm has been obtained from ABARES Farm Survey Data.

The ABARES Farm Survey Data is based on surveys conducted with a representative sample of farms across Australia. Data is primarily collected through face-to-face interviews with farm owners/managers and detailed financial and physical information is obtained for the farm operations of the previous financial year. Survey data for individual farms is appropriately weighted to ensure data reliability for the entire population.

For more information on the farm survey data methodologies, please see: https://www.agriculture.gov.au/abares/research-topics/surveys/farm-definitions-methods

The latest ABARES Farm Survey Data available for our benchmark analysis is the data from the financial year ended 30 June 2019.

Operational Analysis

Production and Income

Production Mix

Colodan's production mix consists predominantly of livestock trading from cattle sales, with minimal income deriving from other farm income, such as the sale of timber. The implementation of regenerative farming practices on Colodan has led to significantly increased production levels to those of the Average Farm. With increased production, the income generated on Colodan is generally higher compared to the Average Farm.

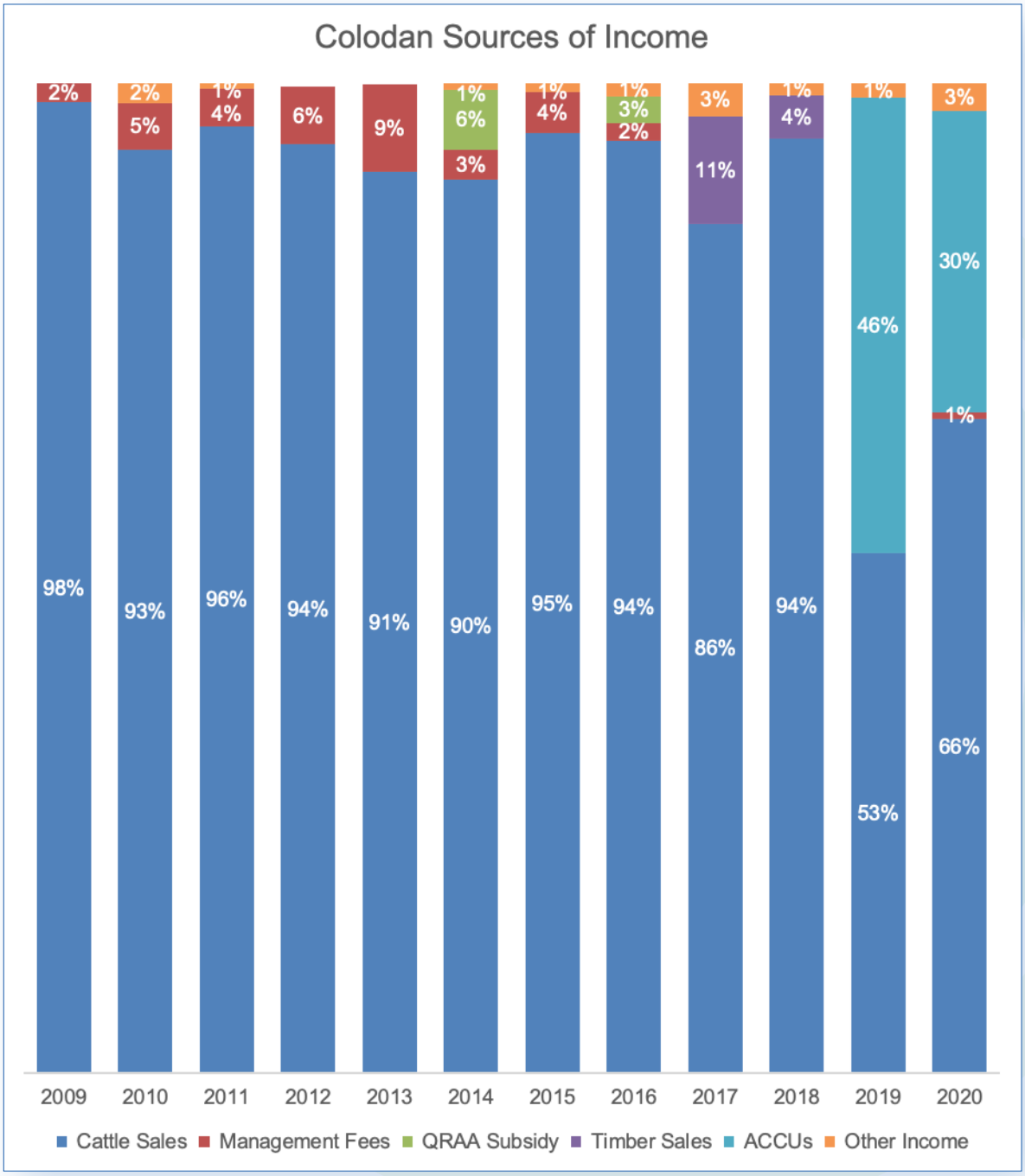

Figure 1: Colodan Sources of Income – Majority income earned from Cattle Sales

Cattle sales form the majority of Colodan's revenue, accounting for at least 80% of production each year.

The introduction of a rotational grazing system between paddocks has allowed for James and Kylie to better manage their cattle while focusing on the condition score of cows. The use of a rotational grazing system has allowed James and Kylie to increase stocking rates to match the available feed of the paddocks. In order to maintain the rotation of cattle, James & Kylie have to closely monitor available feed and cattle conditions. During the grazing rotation, the paddocks that are not currently being grazed are generally given long periods of rest to be replenished. This improves soil health, pasture quality and drought resistance. This is important for condition scoring beef cattle.

Cow condition score is an assessment of the overall depth of muscle and fat that covers the skeleton of the cattle. James and Kylie use this tool as an indication of the cattle's state of nutrition. This helps them to better manage the nutrition of their cattle and optimise breeding performance. The implementation of condition scoring allows better management of the rotational grazing system given the strong link between the body condition of the cattle and its health, and productivity and reproductive performance. Evaluating the condition scores allows both animal performance and pasture management objectives can be achieved. .

With a better managed system that focuses on the nutrition and health of the cattle, James and Kylie have been able to consistently outperform the Average Farm in terms of cattle profitability.

Figure 1 also illustrates the multiple additional income sources that contribute to the overall revenue of Colodan. From 2009 to 2016, management fees contributed proportionally to Colodan's other income. From 2017 onwards James and Kylie no longer received management fee income due to family matters (see social report for details).

In 2014, James and Kylie were provided assistance in the form of an interest subsidy by the Queensland Rural Adjustment Authority (QRAA). They also received additional smaller grants for flood recovery and water infrastructure in 2016, which comes under 'Other Income' in Figure 1.

In 2017 and 2018, James and Kylie received incremental revenue from timber sales. Timber is sold approximately every 30 years. James and Kylie plan to change this to a 15 year cycle. The timber that is grown as part of the carbon projects cannot be sold until after the project has been completed – 25 years.

Australian Carbon Credit Units (ACCUs)

James and Kylie have invested in carbon farming projects on Colodan and have been able to earn a significant number of ACCUs. A portion of their ACCUs were sold in 2019 and 2020. The sale of credits contributed 46% of Colodan's total revenue for 2019 and 30% of total revenue for 2020 (see figure 1).

The ACCUs can provide James and Kylie with a diversified source of income to supplement their primary beef cattle farming. The ACCUs are currently (as of March 2021) sold in market between $17 and $18 per ACCU.

In order to provide a fair comparison of production expenses and outcomes, using the ABARES benchmarks, which focus on cost of production and production data, we have excluded the ACCU sales in 2019 from our benchmark analysis throughout this report.

Total Revenue Per Ha

Figure 2 compares Colodan's revenue to that of the Average Farm on a per hectare basis.

Figure 2 includes the price of cattle over the 10-year period. The average Queensland price of cattle (cents per kg in carcase weight) correlates strongly with the revenue of the Average Farm. For example, as the cattle prices from 2015 to 2018 increase, so does the revenue for the Average Farm during those years.

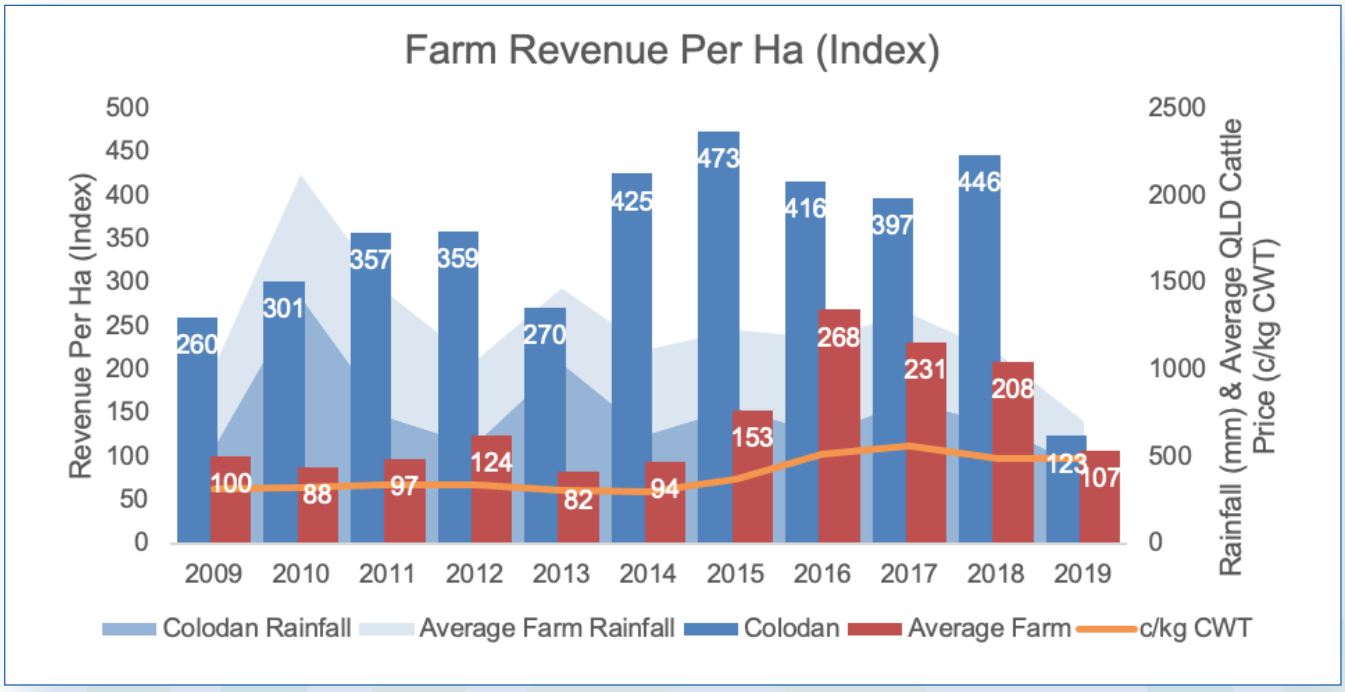

Figure 2: Revenue Per Ha (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.
Please Note – ACCU sales in 2019 have been specifically excluded from the Farm Revenue Per Ha analysis.

Overall, Colodan consistently outperforms the Average Farm in terms of revenue. In 2013, Colodan experienced wet seasonal conditions. As cattle export takes place predominantly through the dry seasons, both the Average Farm's and Colodan's revenue decreased in this period. It is also worth noting that the 2011 ban of cattle exports to Indonesia likely contributed to the decrease in revenue that year through the falling cattle prices.

In 2014, both the Average Farm and Colodan had a significant increase in revenue. During this year, Colodan experienced dry seasonal conditions. This led to an increase in cattle turn-off and therefore an increase in revenue from cattle sales for both the Average Farm and Colodan. While both farms experienced this increase, Colodan significantly outperformed the Average Farm. This was also the period in which James and Kylie introduced the rotational grazing system.

After the peak in 2015, there is a marginal decrease in Colodan's revenue in 2016 and 2017. During these years, the quantity of cattle was reduced due to family matters (see social report for details). This reduction resulted in a slight decrease in cattle sales. In 2019, there was a significant decrease in revenue for Colodan as a result of drought conditions and family matters (see social report for details).

Cattle Sales Per Ha

Figure 3 illustrates the number of cattle sold per hectare on Colodan compared to that of the Average Farm. Cattle sales are the primary source of income for Colodan. Generally, the number of cattle sold for both Colodan and the Average Farm are quite similar from 2009 to 2013 and 2016 to 2017. However, revenue per hectare (Figure 2) is significantly higher for Colodan, indicating that James and Kylie are receiving a considerably higher price than the Average Farm. This is potentially a result of higher quality stock grown on Colodan and/or the cattle being presented to market in optimum conditions – due to effective management under the rotational grazing system.

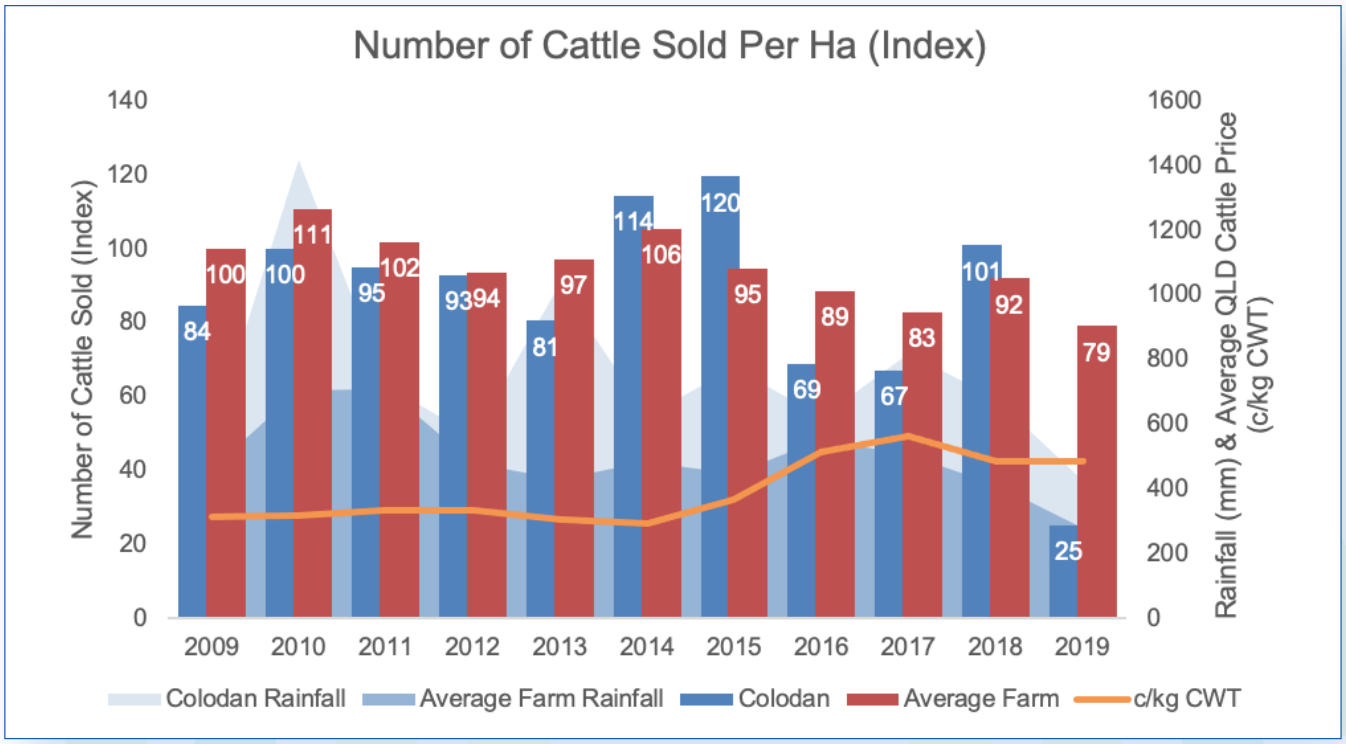

Figure 3: Number of Cattle Sold Per Ha (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.

Data Insights:

- As mentioned in the analysis of revenue above, dry seasonal conditions arose in 2014, during which both the Average Farm and Colodan sold a significantly greater number of cattle compared to the previous year.
- In 2014, the extended dry spell resulted in droughts declared in 80% of Queensland, which caused a significant decrease in the Australian cattle herd. This reduction in herd numbers caused market conditions of demand exceeding supply, ultimately causing the significant increase in cattle prices for the following years.
- Despite the increase in demand for cattle and the subsequent increase in cattle prices, the Average Farm saw a decrease in the number of cattle sold during the 2015. In contrast, the number of cattle sold on Colodan increased in 2015 by 4.8%.
- In 2016, 2017 and 2019, Colodan's cattle sold significantly decreased. In the preceding years (2014, 2015 and 2018), cattle sales peaked for period analysed in this report. This suggests there was a significant sell-off of stock during these years that have resulted in reduced stock numbers available for sale in the following years.

Expenses

Fertilizer and Seed Expenses

Figure 4 illustrates Colodan's fertilizer expenses per hectare compared to that of the Average Farm. From 2009 to 2013, James and Kylie do not invest in fertiliser on Colodan. It is not until 2014 in which James and Kylie begin to introduce the use of fertiliser on Colodan. In comparison, the Average Farm consistently invests in fertiliser across all the years analysed.

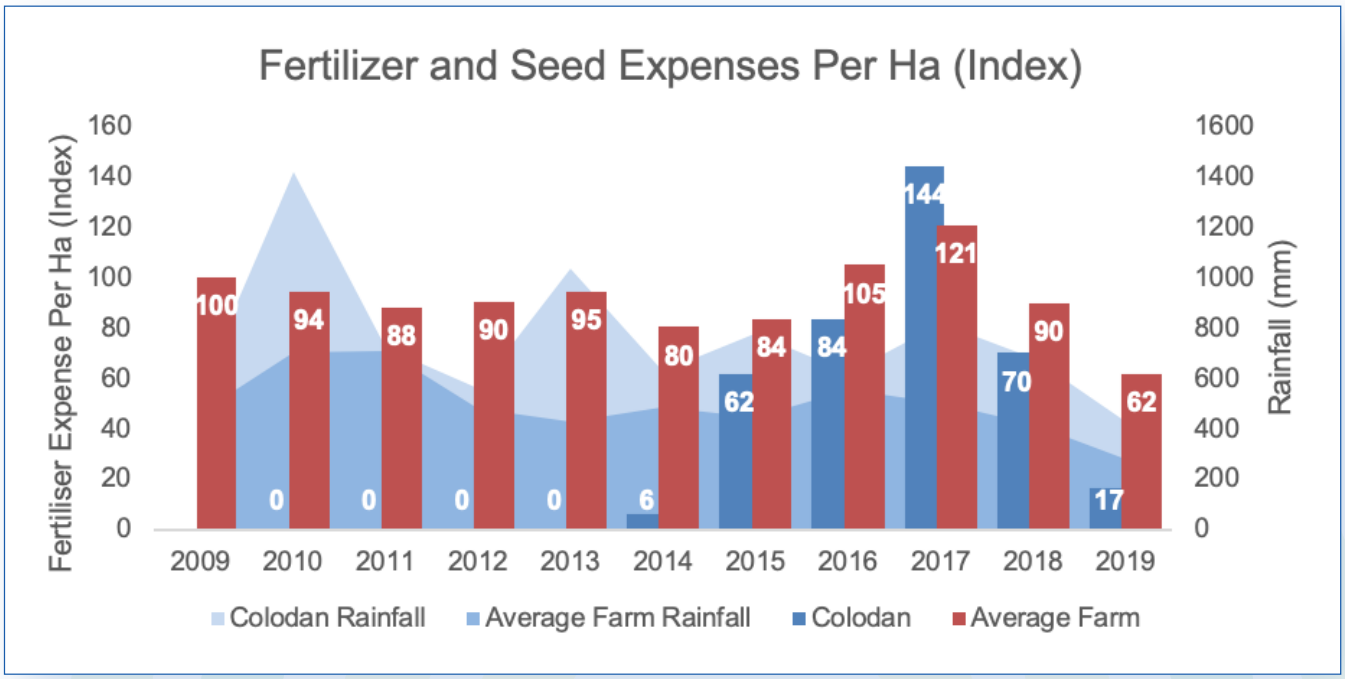

Figure 4: Fertilizer Expense Per Ha (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.

Data Insights:

- James and Kylie begin to invest in fertiliser and seed in 2015.
- Overall, the implementation of a rotational grazing system has resulted in minimal need for fertilizer on Colodan, leading to reduced input costs. This implementation has resulted in the increased growth of native vegetation, hence the lack of investment in fertilizer.
- 2017 was the first dry year after a number of good years. To maintain the pastures, James and Kylie made a significant investment in a deep ripping and seeding initiative. Urea use also increased in 2017 with higher rates of feeding as urea is combined with fodder to improve rumen function.

Fodder and Seed Expense

Figure 5 illustrates Colodan's fodder expenses per hectare compared to that of the Average Farm. Generally, James and Kylie report expenses for fodder significantly lower than the Average Farm, with the exception of 2014 and 2015.

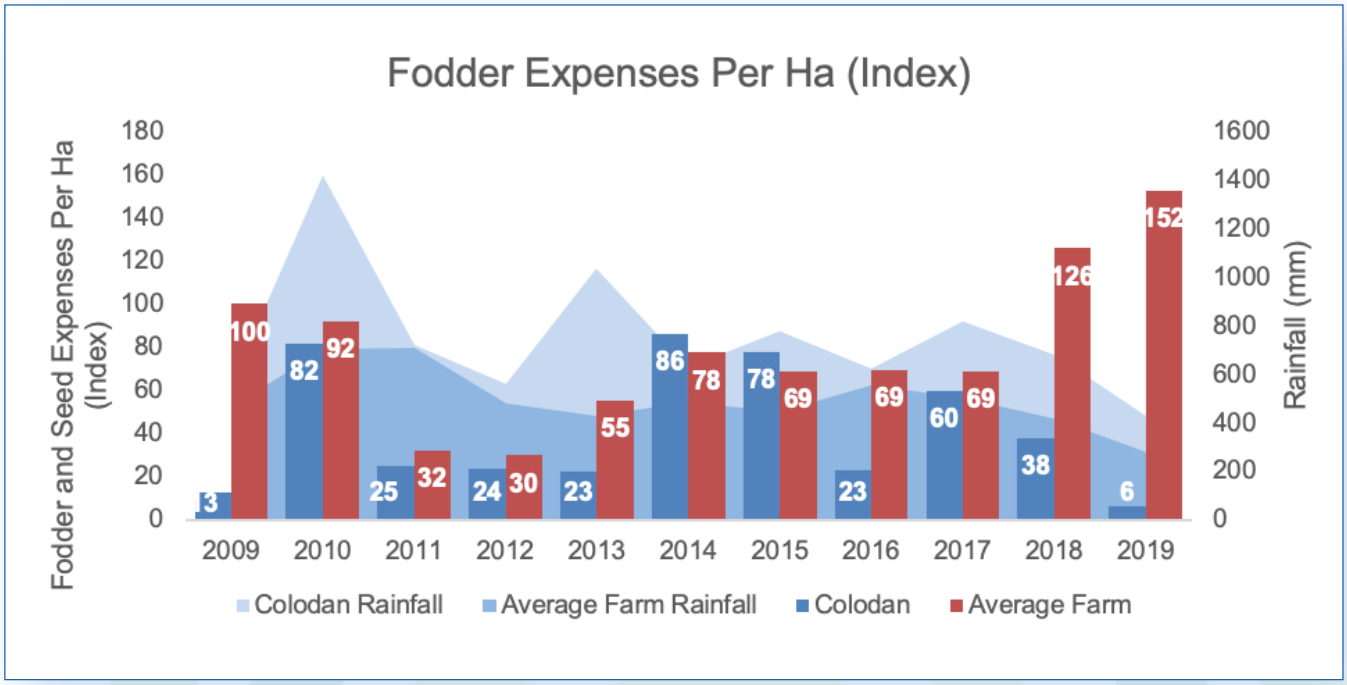

Figure 5: Fodder and Seed Expenses Per Ha (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.

Data Insights:

- In 2014 and 2015, there was an increase in fodder expenses for Colodan. During 2014, Queensland experienced a significant dry season. With the drought conditions, James and Kylie purchased more fodder to sustain their operations.
- The implementation of the rotational grazing system has resulted in an increase in growth of native vegetation, providing a feed source for the cattle. Hence, James and Kylie's fodder expenses are generally less to that of the Average Farm.

Business Performance and Sustainability Analysis

Gross Margin

Cattle Sales Gross Margin

Queensland has the largest proportion of beef cattle in Australia, accounting for 42% of the national herd. Australia accounts for 2% of the global beef cattle, and 15.7% of global beef meat exports.

The performance of Queensland's beef cattle industry is tightly associated with the natural factors of rainfall and drought, which then corresponds to the market supply of cattle.

Figure 6 illustrates the cattle sales gross margin per hectare per 100 millilitres of rainfall at Colodan, compared to that of the Average Farm. Gross margin is a measure of total sales minus the direct costs of cattle production. Gross margin per Ha per 100mm of rainfall is commonly used in the primary production industry to illustrate an enterprises effective utilisation of land and water capacity. The gross margin per Ha per 100mm of rainfall analysis is particularly useful for this Economic Report as Colodan's annual rainfall consistently exceeds the Average Farm – which will have a considerable effect on Colodan's performance and success. The below graph highlights how effectively water is being used by James and Kylie to support Colodan.

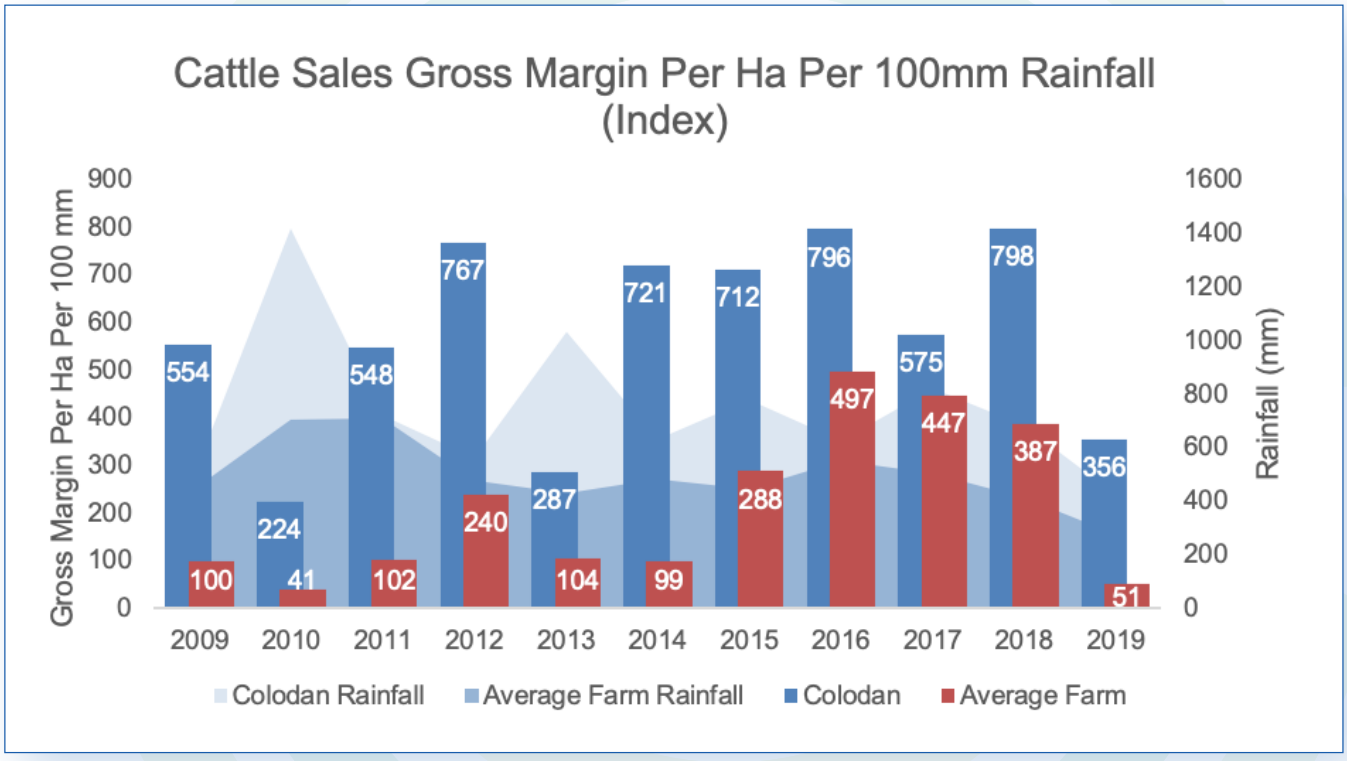

Figure 6: Cattle Sales Gross Margin Per Ha Per 100mm Rainfall (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.
Please Note – ACCU sales in 2019 have been specifically excluded from the Gross Margin Per Ha Per 100mm Rainfall analysis.

Data Insights:

- Colodan's gross margin per Ha per 100mm rainfall significantly outperformed the Average Farm in all years. This is a result of higher production and the associated income, as well as significantly lower expenses.
- In 2013, there is a significant decrease in Colodan's gross margin. This is due to the fall in revenue experienced in 2013 – See Revenue section of this report for details.

Profit Margin Ratio

Table 1 includes the profit margin ratio of Colodan and the Average Farm. The profit margin ratio is a measure of profits divided by revenue. This ratio shows the amount of profit remaining from revenues earned after all expenses were paid by the business, as a percentage.

Table 1: Profit Margin Ratio

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Colodan	27%	10%	23%	30%	-9%	7%	19%	24%	-2%	11%	30%
Average Farm	-5%	-56%	3%	14%	-61%	-80%	-22%	43%	49%	24%	-113%
Difference	32%	66%	20%	16%	53%	87%	41%	-19%	-50%	-13%	143%

Please Note – ACCU sales in 2019 have been specifically excluded from the Profit Margin Ratio analysis.

Data Insights:

- Overall, Colodan achieved a higher profit margin ratio compared to the Average Farm in all years apart from 2016, 2017 and 2018. The difference between Colodan and the Average Farm's results illustrate the enhanced profit producing capability of Colodan's beef enterprise, as seen in 2019.
- Notably, over the period analysed, the Average Farm experienced business losses more often, as illustrated by the negative profit margins. In comparison, Colodan only experienced negative profitability in two of the years analysed, indicating that overall, James and Kylie are able to sustain profitability despite variations in seasonal and market conditions.

Business Profit

Figure 7 illustrates the farm business profit per hectare for Colodan and the Average Farm. The business profit for both the Average Farm and Colodan varies throughout the periods analysed, with significant increases and decreases. This is mainly influenced by the seasonal conditions that Queensland experiences. It should also be noted that the export industry plays an important role in the performance of the Queensland cattle farms.

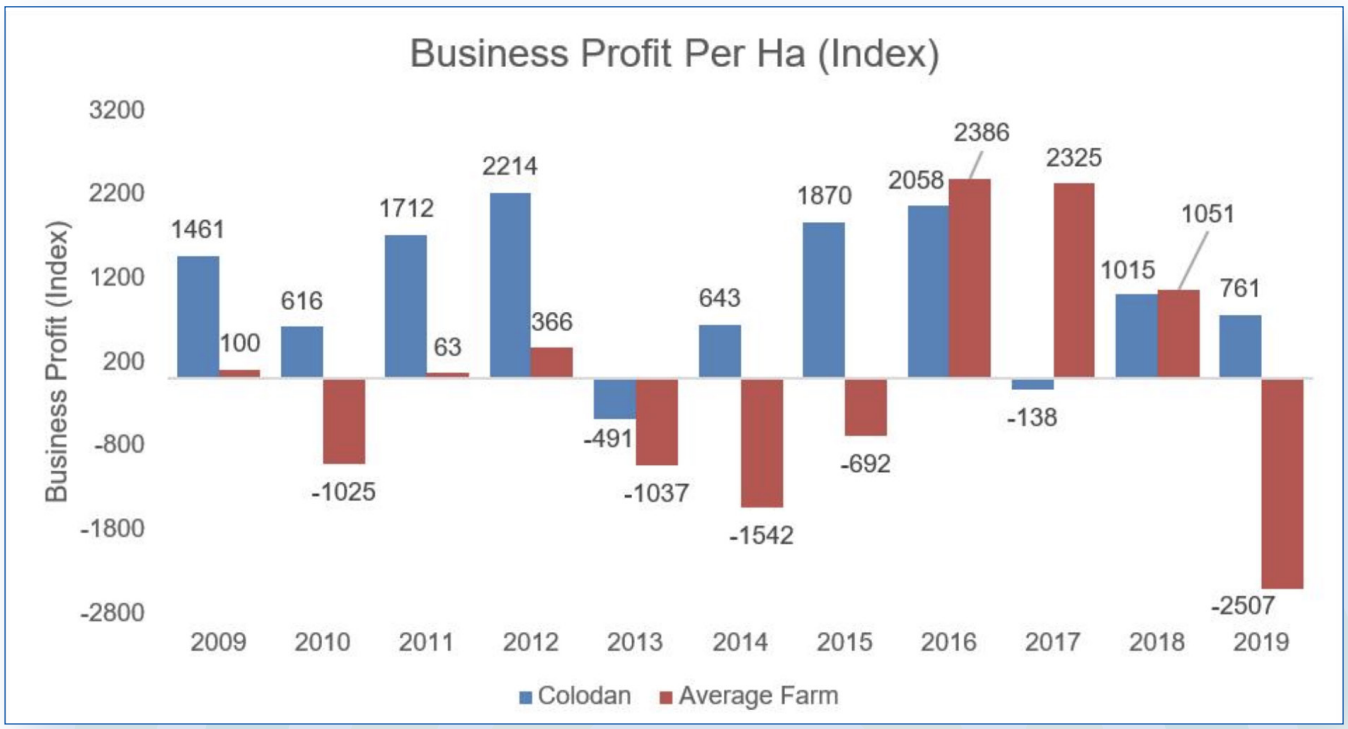

Figure 7: Business Profit Per Ha (Index)
To maintain privacy, the data in this graph has been indexed to the Average Farm.
Please Note – ACCU sales in 2019 have been specifically excluded from the Business Profit Per Ha analysis.

Data Insights:

- Both the Average Farm and Colodan experienced a significant decline in business profit in 2013. As noted previously, during 2013 there was a federally imposed ban on live exports to Indonesia, which is the largest destination for Australian cattle exports. This reduced cattle prices, which detrimentally affected the business profits of many farms.
- In 2014, Colodan was able to recover from its loss in 2013, more quickly than the Average Farm. The Average Farm's business profit continued to decline further by 48.7% in that year. Due to the dry seasonal conditions in 2014 and 2015, Colodan sold more cattle and therefore were able to recover business profit. Additionally, the successful introduction of the rotational grazing system allowed for an increase in cattle production.
- Due to the success of the rotational grazing system, combined with the increasing price of cattle, the business profit of Colodan continued to increase during 2015 and 2016.
- While Colodan received a significant amount of income in 2017, expenses on contract work, fodder and seeds, and repairs and maintenance increased, resulted in a net loss position for the year.
- During 2019, Colodan was able to remain profitable despite experiencing drought conditions. In comparison, the business profit for the Average Farm significantly declined. The ongoing drought conditions combined with unprecedented flooding resulted in an overall drop in the national herd, as seen in the business profit for the Average Farm.

Conclusion

With a focus on improving productivity and sustainability, and the successful introduction of multiple regenerative practices, James and Kylie have been able to transform Colodan into an enterprise that consistently outperforms the Average Farm. This includes the development of a rotational grazing system, a focus on native forestry, and the implementation of carbon projects.

The introduction of these practices has resulted in:

- Improvements in the health and quality of the cattle and ecological health of the land
- An increase in the level of cattle production, often exceeding the Average Farm despite experiencing seasonal difficulties
- Income from the sale of timber
- Supplemental income from investment in ACCUs
- 72% more revenue on average to that of the Average Farm
- 104% higher profitability on average than that of the Average Farm

Overall, Colodan consistently outperforms the Average Farm in terms of production, revenue, profitability, and the key expenses considered in this report. While the pressures of seasonality and the export industry are seen to influence the performance of the Average Farm, Colodan often does not show much correlation to these factors, indicating that the farm is more sustainable, resilient and better managed overall.