

Healthy land, healthy cattle the secret at 'Mystery Park'

Rob and Ainsley McArthur believe ecological sustainability is the underpinning factor for success in agriculture.



'Mystery Park' is a beef cattle property on the Central QLD coast owned and managed by Rob and Ainsley McArthur and their six children.

The underlying philosophy of business at 'Mystery Park' is to capture sunlight to grow grass that produces healthy nutritious beef while regenerating the ecosystem simultaneously.

Rob and Ainsley have been managing 'Mystery Park' together since 2003 when they took over from Rob's family. Over the last decade Rob and Ainsley have made many innovative improvements to the business.

Their key driver for making changes in their business is creating a healthy environment for future generations. Thanks to their passion, dedication and innovations they are now leading the industry in sustainable grazing management.



Case Study Snapshot



Location: St Lawrence, 185km North of Rockhampton, Central QLD

Property size: 12,000 hectares

Currently runs: 5,000 LSU

Average annual rainfall: 1050mm

Enterprises: Beef cattle agistment, breeding and growing.

'Mystery Park' is a family operated business on the central Queensland coast that produces sustainable beef and builds a healthy ecosystem.

Achievements:

- ✓ Increased carrying capacity
- ✓ Improved animal performance
- ✓ Created a healthy ecosystem
- ✓ Healthier happier people

Drivers of success:

- ✓ Passion for environment
- ✓ Determination to run profitable business
- ✓ Attitude
- ✓ Desire to learn and innovate
- ✓ Setting goals

Ideas for future innovations:

- ✓ Technology that provides value for time
- ✓ Streamlined data recording systems
- ✓ Producer and consumer education in sustainable beef production

What makes this business sustainable?

Prior to Rob and Ainsley's management, 'Mystery Park' was a smaller aggregation with a total area of 1,600 hectares. It was running approximately 700 LSU's (Large Stock Unit) managed under a continuous grazing system. Over the years Rob and Ainsley observed that ecological health was declining. The operation was profitable however the business model did not meet the needs of the stakeholders, or match Rob and Ainsley's vision. Overall Rob and Ainsley felt the business and ecosystem was not sustainable.

Now 'Mystery Park' is a thriving business for people, animals and the environment. Rob and Ainsley have expanded their operation to 12,000 hectares and run 5,000 LSU. Simultaneously they have improved the health and quality of the grass and ecosystem. Ainsley educates their children through the School of Distance Education with little or no outside help. Rob and Ainsley have a comfortable lifestyle, enjoying all the benefits of rural living with their six children.

So what makes the McArthur's business sustainable?

- ✓ Significantly increased the carrying capacity of their land
- ✓ Improved animal performance
- ✓ The business model is sustainable
- ✓ The stakeholders in the business are happy and thriving

Rob and Ainsley breed and grow beef cattle as well as agisting cattle on their land. Their herd consists mostly of Brahman crossbred cows joined to Angus and Belmont x Angus bulls. These enterprises have been selected based on gross margin analyses and the need to spread risk throughout the business.



Mustering at 'Mystery Park'

The cattle are managed under a rotational and time controlled (or cell grazing) system, based on the RCS Regenerative Grazing Principles. 'Mystery Park' is divided into 80 paddocks. The fences are a combination of traditional three-strand barbed wire fencing and more recently, single-wire electric fencing. The movement of cattle between paddocks is based on the length of rest period for the plants. This allows the plants to replenish root reserves and organic matter returns to the soil. It also promotes even utilisation of pastures. This prevents desirable grass species being overgrazed and reduces the occurrence of undesirable plant species (weeds). The length of time cattle spend in one paddock varies, from as little as one day or up to 14 days, dependent on the needs of the pasture. At 'Mystery Park' the transition from set stocking to time controlled grazing has been gradual. Where possible, existing paddock infrastructure has been utilised to make this transition cost effective and require minimal capital investment. It has been a learning process over a number of years, and Rob and Ainsley have been willing to adjust their plans as they gain more information.

Since implementing the rotational and time controlled grazing program, Rob and Ainsley have observed significant ecological change. Ainsley states "we are running more cattle than we ever have, yet our grass bank is not diminishing." The pastures are mostly native coastal grasses such as Black Spear, Kangaroo and native Bluegrass with the addition of some improved grasses i.e. Pangola, Callide Rhodes and Signal

grass. The desirable legumes Seca stylo, Verano and Wynn Cassia are also present throughout the property.

Since the adoption of the time controlled grazing system the McArthur's have seen a number of changes. These include:

- ✓ reduction in the number of weeds
- ✓ noticeable increase in ground cover
- ✓ far greater response to rainfall
- ✓ increased biodiversity
- ✓ greater quality and quantity of feed
- ✓ different grass and weed species that come up each year

These observations are a result of plant succession and ecosystem regeneration taking place due to the style of management. It is also worth noting that low-stress stock handling techniques are used to ensure each paddock rotation is a positive experience for cattle and people.

Due to the ecological improvements, the livestock are consuming pastures with better nutrition, which has increases animal production. Improved pasture nutrition has reduced the reliance on external inputs such as supplementary feeding. This has allowed the McArthurs to improve their business bottom line by lowering the cost of production. Ainsley states "we now run Mystery Park as a business and we understand the key drivers behind it. That was a real achievement."

At 'Mystery Park' all stakeholders feel appreciated and have opportunities to participate, learn and grow in

the business. There is a clear distinction between business and family, which allows both to function in synergy. Rob and Ainsley agree that their personal satisfaction and communication within the business has improved noticeably over the years. This is a fundamental factor to running a sustainable business that often isn't acknowledged in the rural industry.

Overall the McArthurs have a strong holistic focus and are successful in balancing all aspects of a rural operation –land, livestock, people and business – making them sustainable.



The McArthur family Left to Right: Tess, Adelaide, Lachlan, Hamish, Andrew, Eliza, Rob and Ainsley.

Motivations for Change

The key motivation behind adopting sustainable management is the McArthurs passion for the land and desire to improve the ecosystem for future generations. The point of change for Rob and Ainsley came after their frustration with having insufficient knowledge to achieve the business and ecosystem they desired. This prompted them to complete the RCS GrazingforProfit School together in 2002. Over the years they observed the more knowledge they had, the more momentum they gained in their business. The McArthurs have since completed RCS's three year ExecutiveLink program, and actively participated in

various learning circles. This ongoing education has given them the ability to expand their operation by purchasing an additional 10,400 hectares. Their participation in ExecutiveLink has also provided them with the confidence and skills to make strategic business decisions.

“The first step was to gain knowledge...”

The McArthurs believe another critical factor to their success is setting goals and developing a vision. When

these were clear, Rob and Ainsley were able to make strategic decisions that were moving in the right direction. One example of this was when they transferred from running a stud enterprise to their current business model (breeding, growing and agistment). A second example was when they introduced the time controlled grazing system. The key factor for Rob and Ainsley was that these actions were profitable and met the needs and goals of the stakeholders in the business.

One challenge for the McArthurs was changing their business model to include an agistment enterprise. Although a common practice in the beef industry, utilising agistment cattle to maximise returns on the grass at 'Mystery Park' was not an easy mental hurdle to overcome. On paper, the scenario made sense however logistical implications brought concern. Questions such as 'how do we source clients?', 'how do we best meet customer expectations?' and 'will new cattle adjust to our country?' arose for the McArthurs. While challenges in land management are common, it is the process of identifying the hurdles and being open to possibilities that allowed Rob and Ainsley to work through change.

Many businesses struggle with time management and with six children it's assumed this would be one of the biggest challenges for Rob and Ainsley, but the couple insist they have the same hours in the day as everyone else that has achieved great things throughout history. They state "it's all about how you choose to use your time". An inspiring characteristic of the McArthur family

is their remarkable attitude. Rob McArthur states "it's not about the business or situation, it's about you and your attitude." Rob and Ainsley are determined to run a business that is profitable and self-sufficient. They are firm believers in 'treating the cause, not the symptom.' This has motivated them to demonstrate that holistic business profitability is underpinned by ecosystem health.

“It's not about the business or the situation; it's about you and your attitude.”

Measured Success at 'Mystery Park'

Business success at 'Mystery Park' has been largely due to Rob and Ainsley's discipline to collect meaningful measurements over time. Ainsley states "the key to good business and ecosystem management is measuring change."

Rob and Ainsley use a number of measurement tools including:

- ✓ Grazing Charts
- ✓ Feed budgeting using Stock Days Per Hectare (SDH) and information from the Grazing Chart
- ✓ Profit Probe business analysis tool
- ✓ Supplementing cost analysis spreadsheet
- ✓ Animal performance monitoring with Gallagher TSi based on National Livestock Identification System (NLIS)
- ✓ Fixed point photo monitoring
- ✓ Stocktake PLUS app
- ✓ Comparing feed budget vs actual feed consumed
- ✓ Soil testing
- ✓ Cattle Faecal NIRS (Near Infrared Reflectance Spectroscopy) testing



The next generation at 'Mystery Park' will have a good handle on soil testing

Carrying capacity at 'Mystery Park' is measured in **Stock Days per Hectare/100mm Rainfall** (SDH/100mm). The advantage of this unit of measurement is that it's a function of rainfall, allowing graziers to see how well they are matching stocking rate to carrying capacity in all seasons. For example, if there has been below average rainfall and the grazier does not reduce their stocking rate, the number of Stock Days per Hectare/100mm rainfall will increase. This is demonstrated in Figure 1 (page 6) with an extremely dry year in 2009. It shows the McArthurs subsequently de-stocked, and their pastures recovered quickly in the years after. Figure 1 also demonstrates that in some areas the carrying capacity at 'Mystery Park' since 2005 has more than doubled - from **8 SDH/100mm** to sustainably maintaining **22 SDH/100mm**. There are some areas of 'Mystery Park' that have not shown as much improvement, such as undeveloped range country. The key message from Figure 1 is that significant improvements are possible with regenerative grazing management and property development.

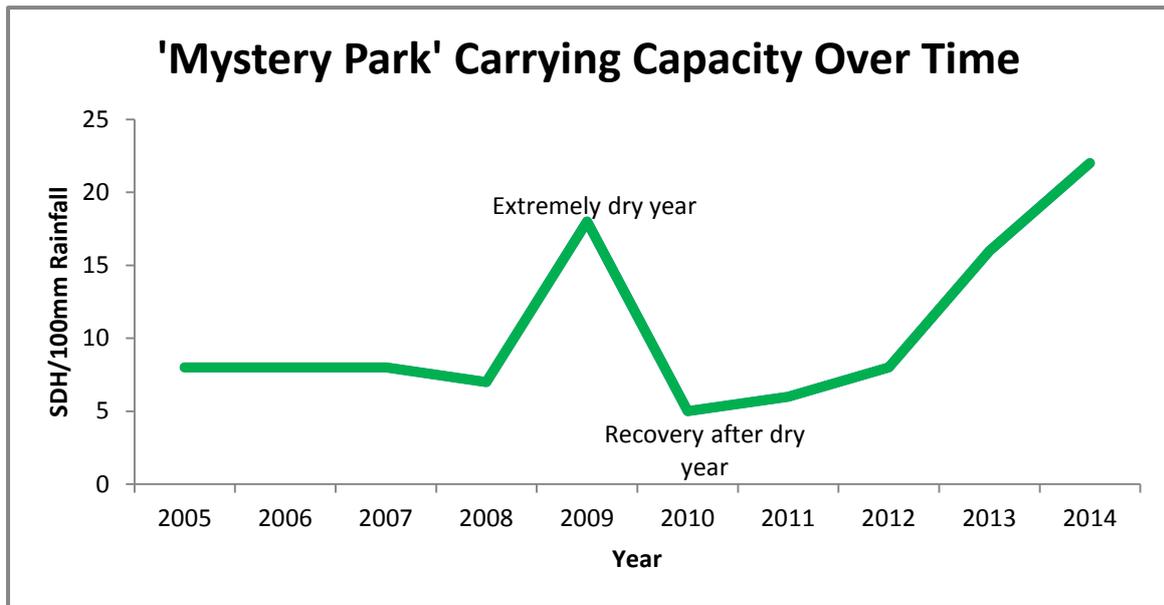


Figure 1 'Mystery Park' Carrying Capacity over time, measured in SDH/100mm

Figure 2 shows that beef production per hectare at 'Mystery Park' has significantly increased since 2005. This is a result of improving their carrying capacity, seen Figure 1.

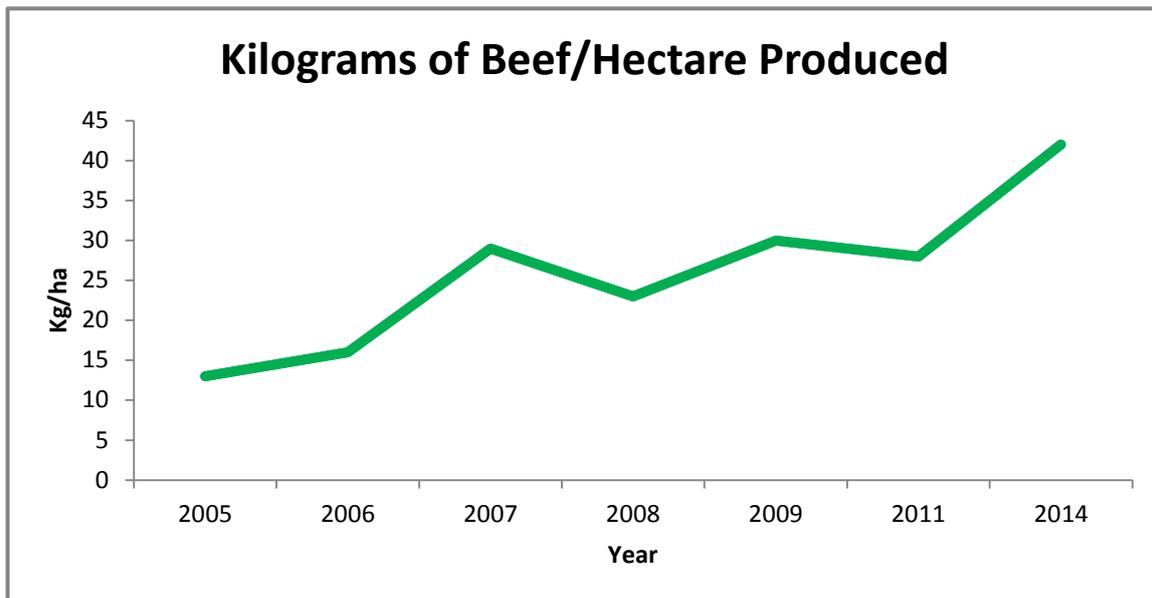


Figure 2 Kilograms of beef per hectare produced at 'Mystery Park'

Figure 3 shows that improved grazing practices have prolonged the length of time that pastures retain a level of digestibility at 'Mystery Park'. These faecal NIRS (Near-Infrared Spectroscopy) tests were done in August at the same time and location each year. Improving the digestibility of the pasture makes significant difference in animal production and overall business profitability as it means protein deficiencies can be addressed more cost effectively, rather than having to provide supplements.

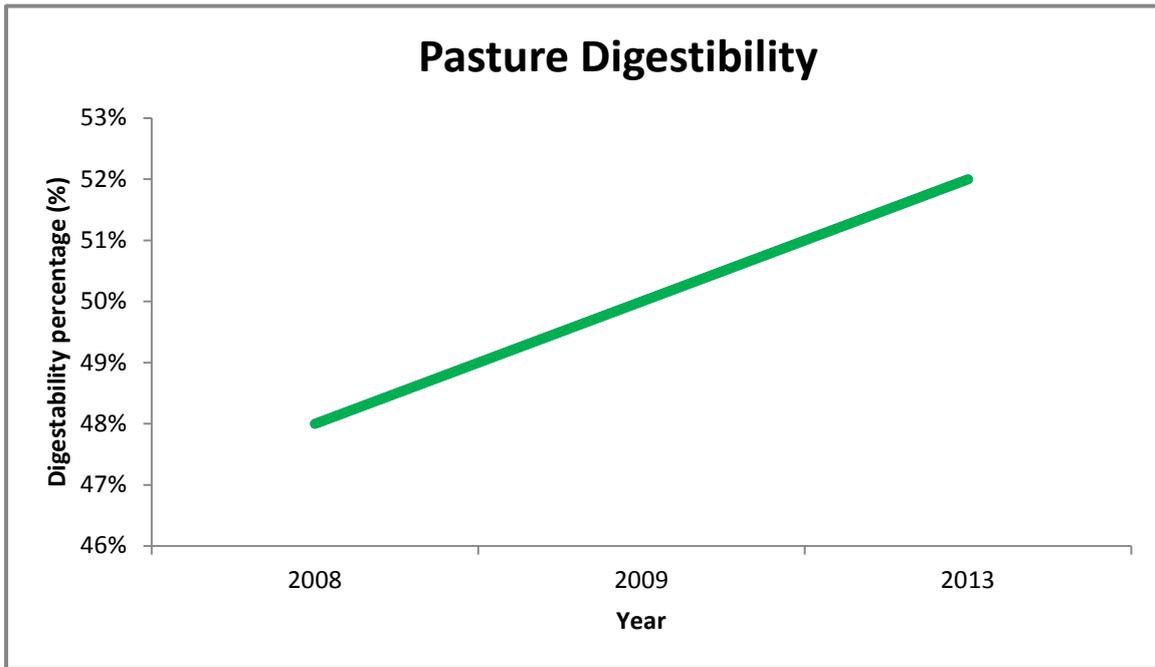


Figure 3 Pasture digestibility over time at 'Mystery Park'

Figure 4 shows trends in ground cover for 'Mystery Park' over time. The 10th percentile line indicates that areas with previously low ground cover have improved. Areas of low ground cover have the highest quantity of soil runoff. This trend of improving ground cover from when Rob and Ainsley began managing in 2003 shows that the grazing management at 'Mystery Park' is reducing detrimental runoff into the reef.



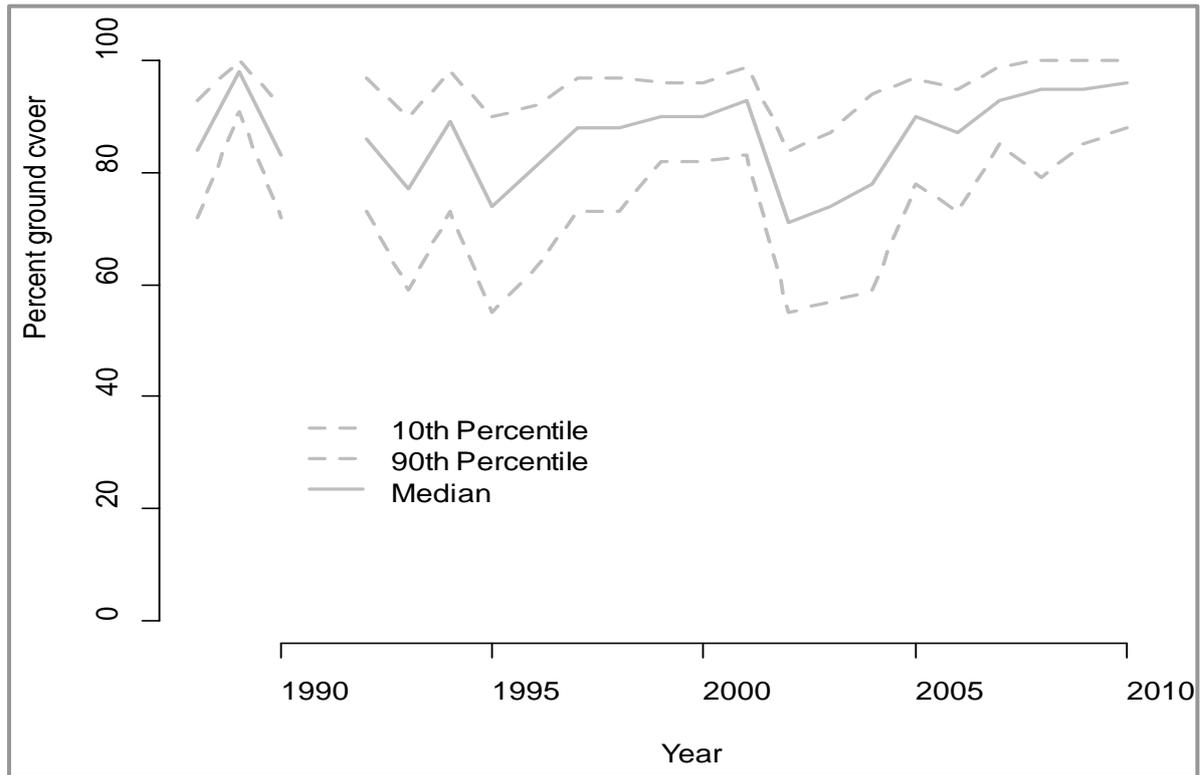


Figure 4 Trends in ground cover at 'Mystery Park'

Source: Daniel Gregg, CQ University

In summary, the data shows the ecosystem health at 'Mystery Park' is improving through grazing management, enabling Rob and Ainsley to run more animals on the same area, increasing the sustainable carrying capacity and business profitability. Evaluating measurements over time has led the McArthurs to make strategic, well informed decisions for their business.

“The key to good business and ecosystem management is measuring change.”



Innovations

Since 2003 Rob and Ainsley have shown they're keen innovators, often on the front foot with what's new in the industry. This is an important trait as keeping an open mind and being willing to try new things is what moves agriculture forward. At 'Mystery Park' a primary innovation has been the implementation of time controlled grazing with single wire electric fences. This method is a big paradigm shift for many in the



grazing industry. The data collected at 'Mystery Park' has shown them this grazing system has the potential to sustainably increase carrying capacity and given them the confidence to continue.

The lack of specific research for this geographic area prompted Rob and Ainsley to run their own cattle nutrition trials. This involved applying Selenium and Cobalt boluses and administering 'Multimin' and Copper injections to cattle. The aim of this is to find new ways to maximise the health and productivity of their cattle. This helped Rob and Ainsley determine whether these would be a cost-effective practice to adopt. The findings from the trial were fundamental to creating a customised supplementing program for 'Mystery Park'.

The McArthurs also have hosted a number of RCS Keep In Touch (KIT) days, soil health field days and horsemanship clinics. Ainsley regularly updates her blog 'From the Veranda' which gives an insight into the day-to-day lives of the McArthur and highlights just how rewarding running a sustainable, healthy rural business can be. This willingness to be transparent is inspiring and critical to the future of the industry.

Looking ahead...

In the future Rob and Ainsley see the potential to improve, expand and fully utilise their environmental resources at 'Mystery Park'. They feel that most of agriculture is barely scratching the surface on an amazing untapped resource which is Australian grazing land. They aspire to further increase business profitability through maximising land carrying capacity and increasing animal production. Lifting carrying capacity by 1 SDH/100mm at 'Mystery Park' translates to running an extra 342 LSU. They aim to do this by improving soil health which will in turn grow higher quality, nutritious pastures. The McArthur family believe that this can be achieved with further with investment in the time controlled grazing system.

To measure these production targets the McArthurs will use the following:

- ✓ Grazing Charts and feed budgeting tools to measure the increase in carrying capacity
- ✓ Profit Probe (benchmarking business analysis tool) to measure business performance
- ✓ Soil tests to see improvements in soil organic carbon and microbial activity

To achieve these goals Rob and Ainsley know they need to be open to new ideas. They saw this first-hand when they shifted from 4 strand barbed wire fencing to single wire electric fencing. They commented “who knows what next – virtual fencing?”

Rob and Ainsley share another realisation they have had, “When we drive around we focus on the land and looking at the quality of the grass first.” This highlights a key philosophy for the McArthur’s - they put their attention on looking after the land, animal and business performance follows.

Looking ahead, the McArthurs believe it will be important to have affordable access to technologies that lower the cost of production or create new opportunities. An example of this is telemetry (remote water monitoring). Furthermore, the McArthurs currently pay six times the standard amount for their internet connection (which is not unlimited download) compared to the price of unlimited internet in most cities. Affordable access to basic technologies is a constraint to their business and could restrict the adoption of future technologies.



Innovations that could make a big difference at 'Mystery Park' are technologies that provide them **value for time**, such as:

- ✓ **Streamlined recording system for the whole of business** i.e. when vaccine is ordered from an agribusiness merchandise store, the product is scanned. This information is then transferred straight to the computer at home. The number of doses, batch number and expiry date are stored automatically. This information could also be scanned onto the animals NLIS tag as it receives treatment in the yards and is recorded on the animal’s history. This data could then be streamlined straight into the management tool for production and financial analysis.
- ✓ **Use of satellite imagery for feed budgeting and measuring ecological health.** The McArthurs estimate they spend at least two weeks a year doing feed budgeting. Whilst they know feed budgeting is an essential driver behind their ecological health, using satellite technology instead would make a big difference and could improve accuracy.
- ✓ **Further investment in fencing and water infrastructure** throughout the industry. They see this as a key driver to improving long term sustainable beef production and improvement of soil health.

“Education of producers and consumers is critical to the future of our industry.”

Rob and Ainsley believe that a key focus for funding bodies should be investments in innovations that will move the industry forward. However, an important factor here is to not only provide funding but also **education**. An example of this is funding

for riparian fencing. When a grazier is given funding there could be a package deal where they also receive education and skills in regenerative grazing management. This ensures the funding is treating the cause (grazing management) not just the symptom (erosion or reef runoff).

Ainsley states “Education of producers and consumers is critical to the future of our industry.” Another aspect to innovation is educating those external to the industry. Raising consumer awareness of what

sustainable beef production looks like would be highly beneficial for the beef industry. With the recent trend for organic and ethical food there is certainly demand for sustainable beef. The missing link here is the collaboration between local communities, agriculture and consumers. Greater collaboration and connection between graziers and consumers is likely to open up more opportunities for the industry – where those who are producing ethical, sustainable meat are being rewarded.



In the future Rob and Ainsley McArthur would love to see a regenerated and fully sustainable agricultural industry. They would love to see financially viable businesses and healthy landscapes. Also these businesses would command a great deal of respect from the wider community. It is positive, productive, and healthy industry – an industry that creates a sense of belonging where young people want to come home and city cousins want to visit. For this to occur, education of producers and consumers must take place.

Healthy land, healthy cattle is the secret at 'Mystery Park'

Overall, Rob and Ainsley believe that the main driving factor behind developing a sustainable business is their passion to improve the land for future generations. To implement sustainable ecological management they believe the first step is to acquire knowledge. To maintain the momentum and make real changes in the business they recommend having a positive attitude, discipline and creating a vision. Looking ahead, Rob and Ainsley believe it is important to educate producers and the wider community to develop a sustainable industry we are all proud of.

