Australian Government | REEF TRUST | Great Barrier Reef Foundation | verterra ECOLOGICAL ENGINEERING

FITZROY WATER QUALITY PROGRAM
MOONKAN PARK

The Fitzroy Water Quality Program is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation. This four-year initiative aims to reduce 50,000t of fine sediment reaching the Great Barrier Reef every year. As part of this, Verterra Ecological Engineering is currently working with landholders to achieve and maintain a portion of these reductions, through low-cost, sustainable grazing land management (GLM) practices. This whole-of-property solution provides both public and private benefit, with Verterra currently seeing 19,763t/year of sediment reduction and landholders seeing substantial increases in production.

Moonkan Park in 2019


Cattle at Moonkan Park

Matt and Kristie Lisle were the first landholders engaged by Verterra within this program. Their property, Moonkan Park, spans 3,500ha approximately 40km southwest of Rockhampton in Central Queensland. The Lisle's purchased the property in 2019, despite it being affected by the continued years of minimum rainfall due to the Millennium Drought, seeing the development opportunities and the potential Moonkan had. Thanks to their substantial efforts since then, productivity has increased and environmental benefits quantified.

IMPROVED PRACTICES

On project commencement, Verterra worked with the Lisle's and grazing extension officers from DAF Queensland to expand upon the landholder's initial grazing practice improvements, and develop a whole of property GLM plan to cost-effectively increase productivity and improve environmental performance:

Practice Change

Matt and Kristie immediately actioned adjustments to stocking rates based on forage budgets and implementation of wet season spelling.

Infrastructure Upgrades

50km of new fence installed, including 5km of pest animal exclusion fencing. Additional water points installed to match the new paddock configuration.

Land Management

Over 600ha of grazing land was improved with multi-species pasture.

Using GBRF funding to implement these changes, sediment runoff was reduced, and overall land condition and grazing productivity saw measured improvements.

For further information, contact Verterra:
+61 07 3221 1102
info@verterra.com.au
Verterra, GPO Box 1950
Brisbane, QLD, 4001

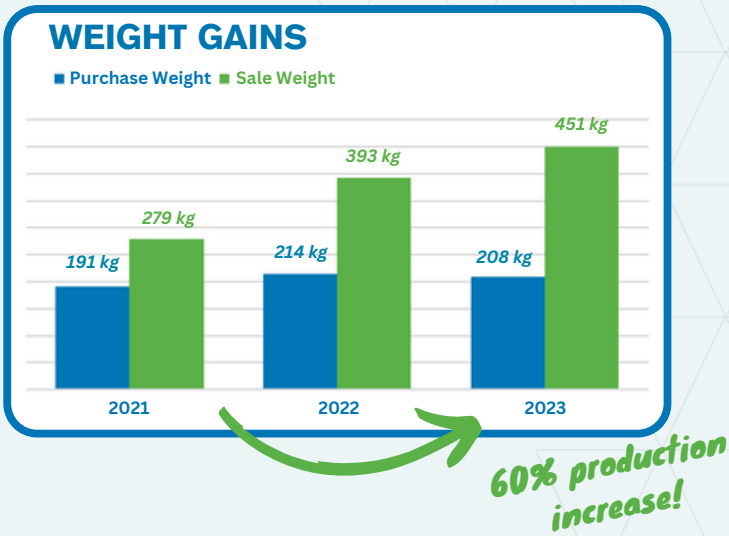
Verterra ECOLOGICAL ENGINEERING

Great Barrier Reef Foundation

PRODUCTIVITY GAINS

Matt and Kristie collect their weight records by yarding and manually weighing cattle, meaning the project had a baseline to measure productivity gains against. Daily data has been collected for more than three years with impressive results - average sale weight in 2021 was 280kg, which increased to 450kg in 2023. Importantly, these weight gains occurred as overall head count and carrying capacity also increased.

To improve data collection, the Lisle's have purchased an Optiweigh system with satellite connectivity for tracking live weight gains and monitoring the performance of cattle through improved grazing. The self-powered system records accurate weights of individual animals at regular intervals during grazing. This eliminates the cost, time, and live-weight loss associated with yarding and manual weighing process currently in place.

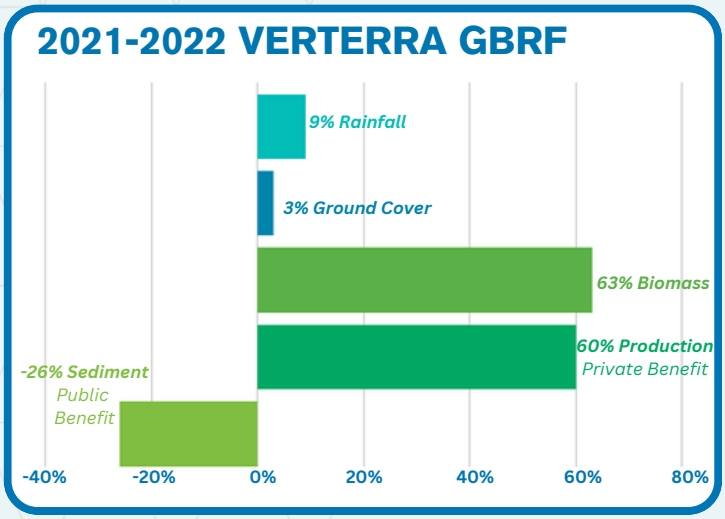


ENVIRONMENTAL BENEFITS

This project focuses on fixing the 'root cause' of erosion and sediment runoff on grazing lands. Well managed pastures limit the energy gained by water as it flows from hilltops into channels into gullies, creeks, streams, and rivers. Meaning, well managed pasture will prevent, or assist, in the repair of eroding gullies.


LCAT Survey

To monitor and evaluate the environmental benefits, Verterra has undertaken repeated Land Condition Assessments, referred to as LCATs. The LCAT considers GLM and ecological principles to determine the current state of the land, rather than its capability, by evaluating key indicators of long-term land condition. The results of the LCATs shows an overall increase in land condition, with an average increase in biomass of 60% since 2021.



Additional to LCATs, the project measures monthly changes in ground cover and compares this against a long-term baseline. With input into an equation referred to as the Revised Universal Soil Loss Equation (RUSLE), Verterra can quantify actual sediment abatement achieved. Using this approach, Verterra has noted a 26% reduction in fine sediment since project commencement. The expectation is that sediment export will continue to reduce over time, as the full benefits of grazing improvement are realised.

For further information, contact Verterra:

+61 07 3221 1102
info@verterra.com.au

Verterra, GPO Box 1950
Brisbane, QLD, 4001

Verterra ECOLOGICAL ENGINEERING

Great Barrier Reef Foundation

ECONOMIC ANALYSIS

Under this project, Verterra is contracted to deliver fine sediment abatement at an average cost of $300/tonne, with GLM under $200/tonne. However, as this project achieves both public and private benefit, the costs are shared between the provided funding, from the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation, and landholder contribution. Landholder costs include their time, employee wages, and purchase of additional equipment to deliver on actions stated in the GLM plan. A full economic analysis will occur at the end of the project. However, for now it can be reported that Matt and Kristie have made a very significant financial contribution to implementing the agreed outcomes.

CHALLENGES AND LESSONS LEARNT

Balancing Multiple Goals

Careful planning and collaboration were required to achieve land condition improvement for both productivity gains and sediment abatement. Input from the Queensland Department of Agriculture and Fisheries grazing extension officers and Verterra staff provided the framework required to effectively balance these goals and develop a template for a property-based GLM plan. This framework and template has since been used for other GLM projects in this Fitzroy Program under the RTP.

Whole of Property Planning

One of the key lessons learnt is that GLM investment is most effective when applied 'at scale' to a total grazing enterprise and thoroughly integrated with the farm business. If applied in a piecemeal fashion to individual paddocks there is a significant risk of outcome 'leakage' which is very difficult to manage through cyclical funding. Whole of property planning and management effectively manages this risk and ensures overall project success.

Collaboration and Knowledge Sharing

Moonkan Park is a good example of a diversity of experiences and skills collaborating to produce a variety of desirable outcomes. Verterra brought land condition assessment and sediment management techniques and expertise, DAF the grazing land management knowledge, while Matt and Kristie brought their property management skills. All parties learnt from each other through on-site education and awareness-building efforts to produce the multi-faceted outcomes.

Monitoring and Methods

It is important to have robust monitoring systems in place to effectively measure the results of GLM improvements. This allows farmers and government investors to be transparent and accountable for outcomes. Furthermore, consistency and integration of modelling, measurement and reporting will be essential as assessment tools and methods for sediment, erosion and land condition are improved, and new funding methods and measurement systems are developed (e.g. Reef Credits).

Long-Term Commitment

Achieving lasting and sustained improvements to land condition and sediment abatement requires long-term commitment from landholders, as well as continuity in funding, support, and knowledge dissemination. While this project will officially finish in 2024, the learnings from this project are being shared and applied. Through this, it is hoped that future programs will have an improved understanding of the importance of allowing for longer term project monitoring and reporting.

For further information, contact Verterra:

+61 07 3221 1102
info@verterra.com.au

Verterra, GPO Box 1950
Brisbane, QLD, 4001

FUTURE SUSTAINABILITY

An unexpected benefit from this project was the development of a draft GLM Reef Credit method. Although Reef Credits are outside the scope of the GBRF and Moonkan Park project delivery, method development would not have occurred without the lessons learnt from the Fitzroy Water Quality Program. GLM improvements under the proposed Reef Credit method aim to achieve a high level of pasture cover before high intensity rainfall periods, reducing the likelihood of fine sediment runoff and maximising the benefits to local waterways and the Great Barrier Reef. Importantly, Reef Credit projects are whole of property and run for 25 years. This aligns well with the Reef 2050 sediment abatement targets, and ensures the future sustainability of projects by providing economic incentives.

Improved pasture

Landowner Matt Lisle

Moonkan Park 2021 vs 2023

DAF Inspection

CONCLUSION

Balancing multiple goals for public and private benefit is achievable though extensive collaboration, whole of property planning, and shared costs. The efforts by landholders Matt and Kristie cannot be understated. With the shared learnings, Moonkan Park is the perfect example of what can be achieved in a relatively short period of time.

ADDITIONAL RESOURCES

https://www.barrierreef.org/what-we-do/reef-trust-partnership/water-quality-improvement/regional-actions/fitzroy

https://www.verterra.com.au/news/item/the-fitzroy-alliance-gully-rehabilitation-project-for-reef-water-quality

Acknowledgements: Great Barrier Reef Foundation, Australian Government's Reef Trust, Matt and Kristie Lisle, DAF Extension Officers.

For further information, contact Verterra:

+61 07 3221 1102
info@verterra.com.au

Verterra, GPO Box 1950
Brisbane, QLD, 4001