FARMING FOR THE FUTURE

LIVESTOCK PILOT PROGRAM: delivering data and insights to build more productive, profitable & resilient farming businesses

Background

Farming for the Future is a world-leading research and change activation program. It was initiated by the Macdoch Foundation in 2021 in response to the increasing urgency for agriculture to play an active role as a nature-based solution to climate change and biodiversity loss whilst continuing to produce high quality food and fibre.

Farming for the Future's Livestock Pilot Program was funded by philanthropy, Meat & Livestock Australia and Australian Wool Innovation, and undertaken in collaboration with Australian farmers and their trusted advisors between 2022 and 2024. It aimed to produce the first national-scale evidence base linking on-farm natural capital to business performance.

Farming for the Future's Livestock Pilot Program surveyed 130 livestock businesses in selected regions of NSW, Victoria, Tasmania and Western Australia. It collected fine scale natural capital information alongside detailed financial and production data via remote sensing, expert ecological observations and producer interviews. The resulting dataset is the largest of its kind in the world, and it has been used to provide robust quantitative insights into the role natural capital can play in supporting the productivity, profitability and resilience of Australian producers.

Research findings

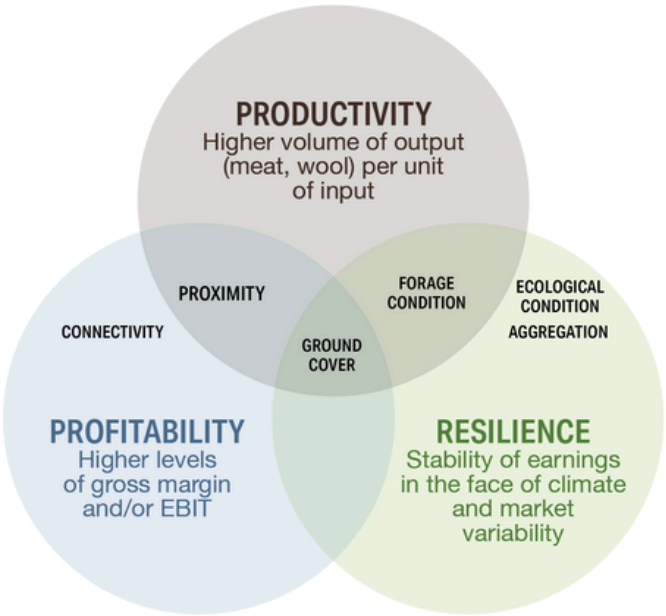
Findings from *Farming for the Future's* Livestock Pilot Program show a clear and positive link between natural capital and farm business performance – measured across production efficiency, profitability (gross margin and earnings before interest and tax (EBIT)) and resilience.

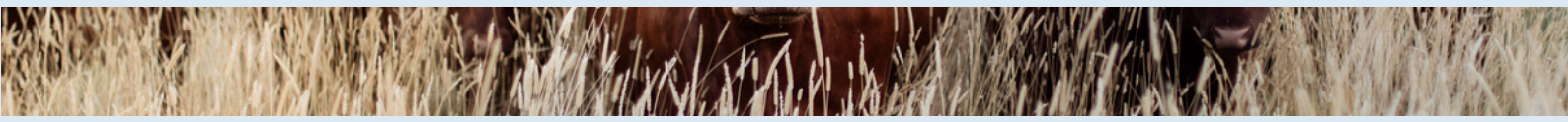
Farms with high levels of natural capital performed significantly and substantively better than farms with lower levels of natural capital over the study period. For example, farms where natural capital levels were configured to support profitability (i.e. higher levels of 'Connectivity', 'Proximity' and/or 'Ground Cover' depending on the specific farm context) reported higher EBIT, in the range of + $50 to $150 per ha per year. This represents ~30% improvement on average farm performance.

The research findings indicated that different types of natural capital might support different farm performance outcomes. For example, 'Proximity' was associated with higher levels of productivity and profitability, while 'Ecological Condition' and 'Aggregation' were associated with higher levels of resilience (Figure 1).

Additional details on *Farming for the Future's* natural capital metrics can be found on the resources page of our website (www.fftf.org.au).

Figure 1: Natural Capital - Farm performance relationships from 130 livestock farms





Empowering Farmers

Workshops with more than 500 farmers undertaken as part of *Farming for the Future's* Livestock Pilot Program found that private financial benefits provided the most compelling motivation for them to invest in natural capital improvements (Figure 2).

The positive relationships between natural capital and farm productivity, profitability and resilience reported by *Farming for the Future's* Livestock Pilot Program point to specific situations where natural capital investment may help farmers to achieve their business objectives. The link between natural capital and the resilience of livestock businesses is of particular note: based on the word cloud presented in Figure 2, this provides a compelling motivation for farm- and industry-level investment in natural capital as climate adaptation and mitigation strategy.

The research also showed that the natural capital – farm performance relationships observed were variable across survey region and farm types reflecting the influence of local conditions and management practices on farm business outcomes. To enable each participating producer to identify the types of natural capital that are associated with better performance for their region and farm operating mode, they were provided with an individual economic report showing the findings for their local region and similar farm types as well as the results from the full sample. They were also provided with detailed natural capital reports to assist them to identify where the natural capital investments might be placed on the farm. Experienced farm advisors were recruited to assist with the producer engagement and data collection also assist with interpretation of the research findings and implementation of any natural capital management changes.

Although most of the natural capital relationships observed during *Farming for the Future's* Livestock Pilot Program were positive, a small number (n=8 or ~7.5% of the 104 relationships tested at the regional and/or farm-type level) were negative at the $p<0.05$ level. For example, there was a negative association between 'Ecological Condition' and production efficiency in Western Australian farms. This suggests that robust context specific insights will be necessary to avoid unintended adverse outcomes for farm businesses. It also provides confirmation that, in some specific cases, financial support (for example from government payments or other market incentives) may be required to make natural capital investment a financially viable option for producers.

Figure 2: Most compelling motivations for producers to invest in natural capital

Program Impact

Modelling using the CSIRO 'ADOPT' model (*www.adopt.csiro.au*) indicates that, by providing producers with empirical evidence about the financial benefits associated with natural capital on farms, *Farming for the Future* could achieve natural capital improvement on +38% of farms relative to the baseline (without *Farming for the Future)* scenario. This means that, with continued stakeholder communication and engagement, the findings from *Farming for the Future's* Livestock Pilot Program are likely to initiate natural capital improvements on 2,280 livestock farms within our focus study regions over a 7-year time frame.

If scaled to the broader extent of livestock operations in the Australian broadacre agricultural zone, Farming for the Future could initiate natural capital improvements on ~13,000 livestock farms. Based on an average farm size of 2,500ha and an average increase in EBIT of $90 per ha per annum, this could provide an industry benefit conservatively estimated at $3B per annum.

Investing in on-farm natural capital also brings public benefits. We estimate that improved natural capital could deliver the industry benefits described above whilst also delivering $40B worth of biodiversity improvements over the next 20 years (as valued using market prices from the NSW Biodiversity Offset Scheme).

Next Steps

Over the next five years, *Farming for the Future* aims to secure funding to enable it to expand its research activities to apply to other types of agriculture and include farm enterprises across all Australian states and territories. This will enable the creation of a dataset that is representative of the breadth of farm operation types, sizes, and locations across the Australian landscape, and help build a financially prosperous, climate-resilient agriculture sector for Australia.

Farming for the Future will continue to strengthen its network of contributors, collaborators and delivery partners across all future stages of our program and its effort to help Australian agriculture to secure the health of productive landscapes and the resilience of rural and regional communities