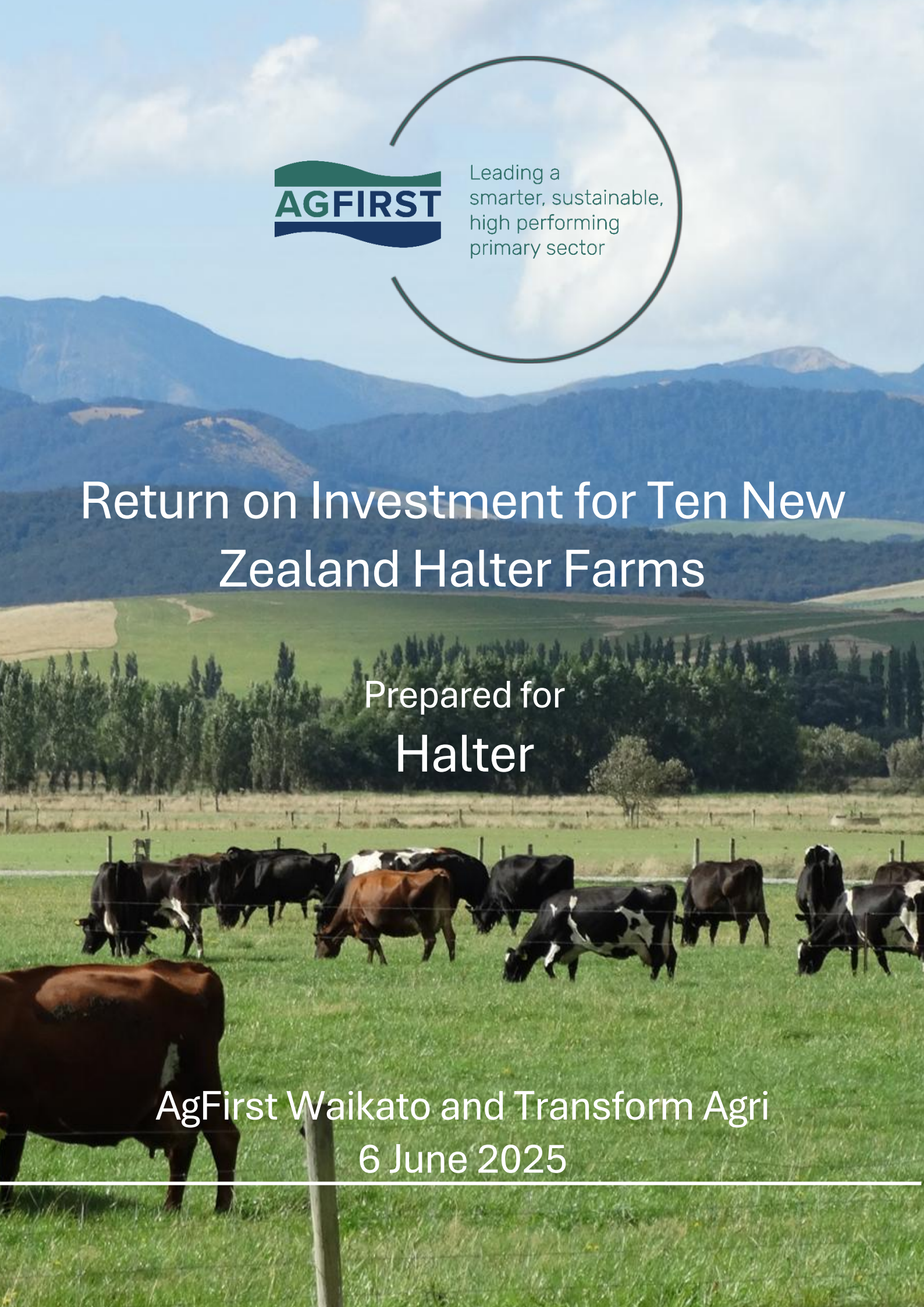

AGFIRST

Leading a smarter, sustainable, high performing primary sector

Return on Investment for Ten New Zealand Halter Farms

Prepared for

Halter

AgFirst Waikato and Transform Agri

6 June 2025

Document Quality Assurance

Prepared by:	Tom Shipley B.Com (Ag), M.MAgrib Agribusiness Consultant	
Approved for release:	James Allen	

This report was authored by Tom Shipley. Significant input, insights and support were provided by Julian Gaffaney, Denise Knop, Dave Miller, Clint Gulliver and James Allen. Their expertise has been invaluable in shaping this report.

Contents

1.0 Executive Summary

This report, prepared by AgFirst Waikato and Transform Agri, evaluates the return on investment and productivity impacts of Halter's virtual fencing technology across ten high-performing New Zealand dairy farms. The analysis confirms that when combined with strong farm management, Halter enables significant gains in pasture utilisation, labour efficiency, animal performance, and environmental outcomes. On average these gains resulted in an increase in farm profit before tax of 13.2%.

The ten case studies, five each from the North and South Islands, saw farms achieve an average 8.9% increase in pasture eaten per hectare, a 9.5% lift in milk solids per hectare, a 4.7% improvement in 6-week in-calf rates, and a 2.1% reduction in empty rates. These productivity gains were accompanied by improvements in labour use, with several farms eliminating full-time roles or reducing staff hours without sacrificing output. Staff reported improved job satisfaction, reduced fatigue, and greater engagement, with the technology enabling more informed, timely decisions on-farm.

Operational benefits included more precise grazing through increased break frequency, better pasture allocation, improved calving management, real-time monitoring of rumination and activity, and early detection and real-time alerts. These changes supported higher feed efficiency, better animal health outcomes, and improved staff work-life balance. Environmental gains were achieved through reduced nitrogen use, improved crop utilisation, and the ability to exclude sensitive areas from grazing in adverse conditions.

Financial modelling, which standardised key inputs, demonstrated that Halter can deliver tangible improvements in EBIT. In many cases, reproductive benefits result in high levels of potential added value.

The impact that Halter can have largely depends on how effectively the farm is able to integrate the information and technology into its decision-making and management practices. These farms demonstrate that Halter can drive significant gains by enabling more efficient use of available resources. Halter helps build more sustainable, resilient, and productive dairy businesses. Its long-term value will continue to grow as farmers refine their use of this technology and capture additional efficiencies in future seasons.

Table 1: Performance Changes Post Implementation of Halter

Farm Name	Pasture Eaten per Grazed Hectare (% change)	Change in Pasture Eaten per Grazed Hectare (t DM/ha)	Change in Milk Solids Per Total Hectares (%)	Change in 6-week in-calf Rates (%)	Change in Not in Calf Rates (%)	Change in kg of Nitrogen per ha	EBIT % Change
Harakeke (South Island)	+10.3%	+1.1	+8.5%	+1.5%	-0.3%	-46.00	+19.4%
Maronan (South Island)	+6.1%	+0.8	+6.5%	+6.0%	-3.5%	+1.00	+7.1%
Willowcliff (South Island)	+22.2%	+2.4	+18.7%	+5.0%	-4.0%	+72.00	+29.1%
Kokoamo (South Island)	+7.4%	+1.0	+4.3%	+2.5%	-1.5%	-15.00	+1.2%
Waimakariri (South Island)	+7.2%	+0.9	+10.1%	-1.0%	+2.0%	-3.00	+11.1%
Otamatahae (North Island)	+16.7%	+1.8	+33.0%	+7.0%	-2.7%	-40.00	+37.3%
Grassmere (North Island)	+4.3%	+0.45	+1.0%	+4.5%	-1.3%	+18.00	+15.6%
Ovation (North Island)	-7.6%	-1.0	+8.4%	+13.0%	-8.5%	0.00	-3.0%
Mountview (North Island)	+14.9%	+1.4	-2.3%	Unavailable	Unavailable	-76.50	+11.3%
Gray (North Island)	+7.8%	+0.9	+6.4%	+4.0%	+0.5%	+0.50	+3.0%
South Island Average	**+10.7%**	**+1.2**	**+9.6%**	**+2.8%**	**-1.5%**	**+1.80**	**+13.6%**
North Island Average	**+7.2%**	**+0.7**	**+9.3%**	**+7.1%**	**-3.0%**	**-19.60**	**+12.8%**
Total Average (South & North Island)	**+8.9%**	**+1.0**	**+9.5%**	**+4.7%**	**-2.1%**	**-8.90**	**+13.2%**

2.0 Background

New Zealand pasture-based dairy farming systems are internationally recognised for their productivity and efficiency. However, over the last decade, rising input costs, staff shortages, changing environmental legislation and increasing complexity of farming systems have caused increased pressure on key decision-makers on farm. Halter was developed to address these challenges. By providing real-time data, virtual fencing and precision pasture and livestock management tools, it enables farmers to make faster, more informed decisions that align with their productivity, profitability and sustainability goals.

In 2024 AgFirst and TransformAgri were contracted by Halter to undertake an independent cost benefit analysis of their virtual fencing technology for New Zealand dairy farms. Over the last five years, a growing number of farmers have integrated Halter into their operations. Among these are a group of high-achieving farmers, who have not only adopted the technology but also transformed their day-to-day management to achieve significant improvements in productivity.

3.0 Purpose

The purpose of this report is to analyse the impact that the adoption of Halter can have on pasture-based dairy farms, when strong farm management is combined with innovative technology. By profiling ten high-performing farms, the report aims to:

- Analyse the range of measurable and intangible improvements these farms have achieved across pasture management, animal performance, work life balance and environmental outcomes.
- Capture and detail the key management changes that enable the improved decision-making and outcomes.
- Inform other farmers and stakeholders about what is possible when combining the adoption of Halter with farm management changes.

The case studies give insight into some of the best performing dairy businesses.

4.0 Methodology

This report presents an analysis of data and interviews with ten dairy farmers who participated in the project. It outlines their experiences, outcomes, and perspectives following the adoption of Halter.

Selection criteria included:

- Improvements in performance could be backed up by strong record keeping over several seasons. This included pasture growth, average pasture covers, supplementary feed use, on-platform feed crops, labour use, reproductive performance and farm working expenses.
- Evidence of strategic management changes made possible by Halter.
- Interest in sharing insights and participating in in-depth interviews and farm visits.

Each case study compares farm performance before and after the adoption of Halter using farmer-supplied data and is analysed in Farmax. The pre-adoption baseline draws on at least one, and ideally two, complete seasons immediately prior to adoption; where additional earlier-season data was available, this was incorporated to strengthen the baseline. Post-adoption performance is taken from the most recent full season, and if a second post-adoption season was not yet available, the first complete post-adoption season was used instead. To avoid skewing results, the implementation year is excluded wherever possible, as short-term adaptation effects do not reflect steady-state farm operations.

Dairy systems monitoring (DSM) templates were applied to each farm according to its representative region, allowing comparison against regional average benchmarks. These same inputs were applied across all years to mitigate price level changes in order to best represent the farm system changes that occurred because of implementing Halter. A long-run milk price of $9.00/kgMS has been used.

Insights were gathered through on-farm interviews with farm owners and managers to explore their reasons for adopting Halter, the decision-making processes involved, and the management changes implemented. By combining quantitative data analysis with these first-hand perspectives, each case study provides a comprehensive view of both the outcomes achieved through Halter's adoption and the farm management changes that enabled those improvements.

5.0 Analysis

Ten dairy farms in total have been analysed with five North Island and five South Island farms. Each case study integrates both quantitative and qualitative components. Quantitative data from one to two seasons prior to Halter adoption is compared with data from the second full season post-integration if available, otherwise if not available the first season's data was analysed. It is important to note that analysis of ten farms does not constitute a statistical analysis. While the study tries to compare across a range of metrics the availability of data meant that the summary only includes information which is shared across all farms.

5.1 North Island Participants

5.1.1 Grassmere

Grassmere's adoption of Halter prompted several key management changes impacting day-to-day operations. Milking herds were moved 5-6 times daily to optimise feed intake and residuals, made possible by eliminating physical break fencing. Calving protocols improved with automated 2 a.m. break drops for colostrum cows and collar deactivation for calving cows, supporting cleaner calving conditions and earlier milk fever detection. Real-time data on rumination, movement, and weight enabled rapid decision-making and validation of changes. During wet weather, cows were relocated remotely to reduce pugging, and dry cows were shifted more efficiently to feed pads. These time savings allowed the Grassmere team to focus on accurate pasture allocation and herd monitoring.

Halter delivered good gains at Grassmere. Pasture eaten rose 4.3% (0.45 t DM/ha), and supplement use decreased 8.9%. Labour needs dropped by 1.5 full time equivalents (FTEs) across three farms, boosting cows per FTE by 13.9% and shortening workdays. Reproductive performance improved with the six-week in-calf rate increasing by 4.5% and not-in-calf rate fell 1.3%. Lameness reduced by 12.4% as cows moved more naturally. Halter's data enabled faster, more confident decisions such as adjusting feed use and conserving surplus pasture more accurately. Staff spent less time on routine tasks and more on high-value work, improving job satisfaction and herd outcomes. Staff engagement improved as Halter made performance data accessible across the team, fostering collaboration and informed decisions. Overall, the team at Grassmere embraced the opportunities which the technology offers to meet their goals of cutting waste from the system by targeting increased pasture eaten and reducing staffing.

Table 2: Grassmere performance before and post implementation of Halter

Season	Pre-Halter: 2021/22 2022/23	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	10,350	10,800	4.3%
Kilograms of Milk Solids per Cow – kgMS/cow	463	479	3.5%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1,483	1,498	1.0%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	117	135	15.4%
6 Week in Calf Rate - ICR	68.5%	73.0%	4.5%
Not in Calf (Empty) rate	11.2%	9.9%	-1.3%
Cows/FTE	165	188	13.9%

5.1.2 Ovation

Ovation Farms first implemented Halter during the 2022/23 season. The following 2023/24 season was the transition/implementation year for this property, with a stable system with Halter not being reflected until the 2024/25 season. The implementation of Halter at Ovation Farms has transformed herd management, reproductive efficiency, and staff workload. Accurate tracking of premating heats now enables targeted use of sexed semen only in cows with three or more heats, improving conception rates. The artificial breeding (AB) period for heifer replacements has been shortened to just three weeks, followed by the use of beef and short gestation semen, which has lifted beef calf sales. These refinements have driven a lift in reproductive performance: the 6-week in-calf rate rose from 69% to 82%, and the not-in-calf rate dropped from 19% to 10.5%. Smaller mobs are now possible during calving, improving feed allocation and reducing pasture damage. The colostrum mob, in particular, benefits from multiple daily moves and better control, improving condition and reducing labour. Staff efficiency and pasture management have also improved. Fencing time in winter has dropped from over two hours to minutes, and summer savings amount to 30 minutes daily. Freed-up time is now used for 10-day pasture walks, enhancing feed utilisation through partial paddock grazing. For the first time, no reseeding was needed post-winter.

Labour hours have decreased by 28.5%, dropping from 10,579 to 7,560 hours. Lameness cases have decreased from 76 to 26. Although actual animal health costs rose slightly from $119 to $124 per cow due to increased mastitis, the overall efficiency gains remain substantial. Milk solids per cow increased from 423kg to 455kg, even with a reduced pasture offered per cow (from 4.5t to 4.1t) due to drought. Body condition at peak milk improved from 4.42 to 4.62, and rumination data now guides early lactation milking transitions, supporting better recovery. Staff enjoy improved rosters, shorter shifts, and a more satisfying work environment. Overall, Ovation have met their goals of improving the 6-week in calf rate, reducing empties, and reducing staff hours while having the additional benefit of increasing production.

Table 3: Ovation performance before and post implementation of Halter

Season	Pre-Halter: 2021/22	Halter: 2024/25	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	13,646	12,608	-7.6%*
Kilograms of Milk Solids per Cow – kgMS/cow	423	455	7.6%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1,183	1,282	8.4%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	156	156	0.0%
6 Week in Calf Rate - ICR	69%	82%	13.0%
Not in Calf (Empty) rate	19%	10.5%	-8.5%
Cows/FTE	163	177	8.6%

**Drought Impact*

5.1.3 Mountview

The implementation of Halter at Mountview has resulted in a range of system changes. Halter was installed following a long-time staff member leaving, with the decision made to implement Halter instead of replacing them. The focus has therefore been on time and labour efficiency gains which has been achieved. Break fencing time has dropped from three hours to 10 - 15 minutes daily in the winter, freeing time for jobs like fencing repairs and weed control. Overall fortnightly hours are reduced, yet productivity is up, and staff are less stressed. Cows are no longer followed to the shed, saving 1–1.5 hours daily, also reducing pressure on the cows having a positive effect on the decreased cases of lameness. These time savings have allowed cow numbers per full-time equivalent to increase 47.2%.

This autumn calving system has seen reproductive performance improve through 100% AI, early detection of non-cycling cows (day one vs day 21), and better synchro programme use. Tail paint is no longer needed, and collar lights simplify heat detection during milking (actual pre and post halter reproductive performance figures are not available, however it was noted that benefits were being observed). The first year saw animal health improve, with early issue detection and down cows dropping from 10 to 2. Rumination data now informs key decisions.

Pasture surpluses are identified earlier, enabling higher-quality, earlier silage cuts. Overall pasture eaten per grazed hectare has seen a large increase of 14.9%. Crop management is easier with virtual fencing reducing trampling and preventing runoff. Although no production gains have been made, the farm is operating more efficiently with current staff reducing hours worked while allowing more time to be spent off farm undertaking contracting work without increasing the number of staff on farm. Nitrogen fertiliser has shown a reduction, nitrogen on this farm typically is only applied to crop with little to no fertiliser usually applied to pasture.

Table 4: Mountview Farming Trust performance before and post implementation of Halter

Season	Pre-Halter: 2020/21, 2021/22	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	9,400	10,800	14.9%
Kilograms of Milk Solids per Cow – kgMS/cow	425	428	0.7%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	925	904	-2.3%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	76.5	0	-100.0%
6 Week in Calf Rate - ICR	Unavailable	Unavailable	Unavailable
Not in Calf (Empty) rate	Unavailable	Unavailable	Unavailable
Cows/FTE	108	159	47.2%

5.1.4 Otamatahae

The implementation of Halter at the Otamatahae property resulted in several management changes. Rather than relying on predicted growth and pasture cover data, significant time was invested into accurately assessing every pre-grazing cover, residual and accurately allocating feed every time. The regular assessment of previous decisions has fine-tuned daily decision making and increased confidence. Virtual fencing has enabled effective back-fencing across large, steep paddocks, boosting pasture growth as demonstrated by the 16.7% lift in pasture eaten. Halter has eliminated the need for manual tools like tow-behind pasture meters and spring rotation planners, resulting in major time savings.

Previously, long working hours and a small shed limited pasture harvesting through grazing. Halter has removed these constraints, allowing more cows to be milked and lifting the stocking rate from 2.5 to 2.6 cows/ha, with further increases planned. The feeding system intensified from system 2 to 3, increasing total feed intake per cow by 19.6% to 6.1t DM/year. Milk production rose by an impressive 105kg MS/cow.
Staffing was reduced by 0.25 FTE. Day-to-day workload dropped by an hour per person, and calving workload reduced by three hours per person. Staff now start later, work fewer hours, and are more engaged in decision-making. Running multiple mobs, crop feeding, and mating management have become easier. Mating insights improved anoestrus cow intervention, lifting the 6-week in-calf rate by 7%, with another 4% gain expected. The not-in-calf rate dropped by 2.7%, and the new AB-only mating strategy saved $9,000. Environmental gains include a 23.7% drop in synthetic nitrogen use.

Table 5: Otamatahae performance before and post implementation of Halter

Season	Pre-Halter: 2018/19, 2019/20, 2020/21, 2021/22	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	10,800	12,600	16.7%
Kilograms of Milk Solids per Cow – kgMS/cow	357	462	29.4%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	900	1197	33.0%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	169	129	-23.7%
6 Week in Calf Rate - ICR	68.0%	75.0%	7.0%
Not in Calf (Empty) rate	12.7%	10.0%	-2.7%
Cows/FTE	129	151	17.1%

5.1.5 Gray

Halter was first introduced to the farm in 2022, the reason wasn't about fixing a problem, but to improve work-life balance and build a more flexible, future-proof system. Three seasons later, the 2024/25 results show strong performance gains with pasture eaten per hectare up by 7.8%, milk solids per hectare increasing by 6.4%, and the 6-week in-calf rate has improved by 4%. These improvements have been achieved without increasing staff numbers. 2022/23 season was a transition year as the technology was first implemented. The 2023/24 season was the first in which farm changes began being made, Halter made managing the system much easier this year even though performance was not considered reflective of the technology. This is largely due to limited pasture growth and widespread disruption from adverse environmental conditions, including Cyclone Gabrielle. As data from the 2024/25 season was available, the analysis focused on this period. This provided a more accurate representation of the farm system both before and after implementation of Halter.

Environmentally there are now fewer issues around pugging, the soil is in better shape, largely thanks to more controlled and consistent stock movement using virtual fencing. Animal health has also seen improvements with clinical ketosis no longer being a problem and improvements seen with transition management having a noticeable effect on reproduction results.

Halter has also changed the way the team approaches the daily workload. Jobs that used to be contracted out are now being handled in-house. With less time spent on repetitive tasks, there's more room for forward planning and exploring different ways to use the system. This farm illustrates that you don't need to wait for a problem to make a change and that good gains come from being proactive.

Table 6: Gray farm performance before and post implementation of Halter

Season	Pre-Halter: 2020/21, 2021/22	Halter: 2024/25	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	11,600	12,500	7.8%
Kilograms of Milk Solids per Cow – kgMS/cow	365	370	1.4%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1005	1,069	6.4%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	76.5	77	0.7%
6 Week in Calf Rate - ICR	76%	80%	4.00%
Not in Calf (Empty) rate	11.5%	12.0%	0.5%
Cows/FTE	241	252.5	4.8%

5.2 South Island Participants

5.2.1 Waimakariri

Since implementing Halter at Waimakariri, several operational changes have transformed farm management. Grazing management shifted from two breaks per day to more responsive, data-driven decisions enhancing consistency and awareness of residuals. Wintering and transition periods have also become more efficient with reduced break-shifting and driving time, leading to less stress and better crop utilisation. Other environmental gains include night breaks being set at sides of paddocks to reduce normal nutrient transfer patterns as well as back fencing being used strategically to minimise pugging. Reproductive management has changed with better pre-mating interventions and going to full 10 weeks AI, compared to 5 weeks AI followed by bulls as was used pre-Halter. The implementation year saw reproductive improvements before a notable drop off in 2023/24. Calving operations improved through easier management of multiple herds and more tailored feeding based on cow activity and rumination.

Implementing Halter has provided measurable performance gains and intangible benefits. Pasture harvested per grazed hectare increased 7.2% (from 12,816 to 13,736 kgDM/year), while milk solids per cow rose 12.2% (from 434 to 487 kgMS). Herd reproductive metrics improved: 3-week submission rates rose, in the two seasons pre-halter these were 84% & 89%, this increased to 92% & 93% in the two post-Halter years, attributed to better heat detection and cycling management. Regarding staff and labour, there was enhanced job satisfaction and reduced fatigue. Sharemilkers reported greater staff engagement, reduced training burdens, as well as improved recruitment flexibility.

Table 7: Waimakariri farm performance before and post implementation of Halter

Season	Pre-Halter: 2020/21. 2021/22	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	12,816	13,736	7.2%
Kilograms of Milk Solids per Cow – kgMS/cow	434	487	12.2%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1439	1584	10.1%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	187	184	-3.0%
6 Week in Calf Rate - ICR	74%	73%	-1.0%
Not in Calf (Empty) rate	11%	13%	2.0%
Cows/FTE	196	192	-2.0%

5.2.2 Kokoamo

After adopting Halter in 2023, Kokoamo implemented several management changes. Grazing management intensified from 2 breaks per day to 5–7, with the leaf emergence indicator being used as a guide for optimal grazing. Rumination data and resting times are monitored to drive higher feed intakes. Wintering efficiency significantly improved with staff requirements decreasing from 5–6 to just 2 people for 3 hours daily. Transition management became more structured, allowing for tighter control of pre-calving cow groups and greater flexibility through the de-fencing of support blocks. Halter helped environmental management by preventing grazing in sensitive areas during wet weather. Labour systems have seen improvements in staff rosters, reduced winter fatigue, and more time off and leave over winter. Staff numbers were retained with the priority of staff being shifted, but now able to hire less experienced but more tech-focused and motivated people such as recent Lincoln graduates.

Pasture harvested increased from 13,145 to 14,115 kg DM/ha/year with a corresponding reduction in nitrogen fertiliser use from 172kg to 157 kg DM/ha/year, indicating more efficient pasture use. Milk production per cow rose and reproductive outcomes improved: the 6-week in-calf rate increased by 2.5%, while the empty rate fell by 1.5%. Staff engagement rose significantly. Labour intensity during wintering was reduced, allowing staff more time for monitoring and meaningful work. Environmental management improved through better grazing management in wet conditions. Overall, the goal of supporting staff, increasing sustainability for people, then cows, then pastures to drive physical performance has been achieved through the introduction of Halter into the farm system.

Table 8: Kokoamo performance before and post implementation of Halter

Season	Pre-Halter: 2022/23	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	13,145	14,115	7.4%
Kilograms of Milk Solids per Cow – kgMS/cow	516	538	4.3%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1818	1897	4.3%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	172	157	-8.7%
6 Week in Calf Rate - ICR	74.0%	76.5%	2.5%
Not in Calf (Empty) rate	9.5%	8.0%	-1.5%
Cows/FTE	180	180	0.00%

5.2.3 Willowcliff

Since implementing Halter, Willowcliff has made changes that have significantly improved efficiency, productivity, and staff wellbeing. Grazing management shifted from manual assessments to data-driven decisions using Halter's pasture module, allowing precise control of pre-grazing covers and residuals. This enabled earlier spring rotations and the adoption of 6–8 grazing breaks per herd daily, improving pasture quality and cow intake.

Wintering was restructured giving improved control on fodder beet, reducing stress and time pressure, while improving transition management for colostrum cows with regular shifts thus improving recovery. Labour efficiency improved with staffing reduced from 7.5 to 5.5 FTEs, without compromising performance, staff became more engaged, took on greater responsibility, and benefitted from real-time information, leading to better decision-making. Reproductive performance also improved, with Halter replacing traditional heat detection methods, resulting in a 5% lift in 6-week in-calf rate and a 4% drop in empty rate.

Environmental outcomes strengthened, as Halter allowed for more responsive grazing to avoid pugging and protect critical source areas. These changes led to a 22% increase in pasture harvested (2.4 TDM/ha), a 17% rise in milk production per cow, reduced stress for both staff and management, and enhanced overall operational clarity. Halter has ultimately transformed Willowcliff into a more sustainable, productive, and resilient dairy operation. Goals of increasing pasture harvested and staff efficiency have been achieved.

Table 9: Willowcliff performance before and post implementation of Halter

Season	Pre-Halter: 2021/22	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	10,790	13,190	22.2%
Kilograms of Milk Solids per Cow – kgMS/cow	452	529	17.0%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1561	1853	18.7%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	90	162	80.0%
6 Week in Calf Rate - ICR	64%	69%	5.0%
Not in Calf (Empty) rate	19%	15%	-4.0%
Cows/FTE	167	231	38.3%

5.2.4 Maronan

Since adopting Halter, Maronan has implemented a series of management changes that have resulted in measurable improvements in farm performance. Grazing management has shifted from reliance on a spring rotation planner to real-time pasture data, allowing earlier completion of the first grazing round (from September 27 to as early as September 13). Break fencing now occurs three times per day. The herd structure has been reorganized from two large herds to three, with four at calving. This is split into first and second calvers, older and mixed aged, and older cows that may have had treatment for lameness or mastitis in the prior season. Before Halter, metabolic issues were high with around 3-4 cows needing treatment per day, being reduced to only one cow every second day due to changes made to colostrum cow management and springer feeding. Live cow data has been utilised in managing animal health, especially with winter feeding fodder beet, being able to recognise changes in rumination has been useful. Traditional break fences are still used during transition onto fodder beet, after 10-14 days Halter is then used for shifts.

Labour requirements have decreased, with one FTE dropped post-calving in the first Halter season. Staff have more sleep, reduced physical work, and more time for higher-value tasks. Reproductive performance has improved, with a 6% increase in 6-week in-calf rate and a 3.5% reduction in not-in-calf rate. Easier decisions around the use of sexed semen are possible with increased information readily available. Environmental benefits are expected from back fencing and managing pugging. Additional impacts include reduced costs for fencing equipment and time savings on tasks like cow movement and feed pad use, all contributing to greater efficiency and overall performance improvements.

Table 10: Maronan performance before and post implementation of Halter

Season	Pre-Halter: 2022/23	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	12,580	13,350	6.1%
Kilograms of Milk Solids per Cow – kgMS/cow	415	438	5.5%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1487	1583	6.5%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	189	190	0.5%
6 Week in Calf Rate - ICR	61%	67%	6.0%
Not in Calf (Empty) rate	18.0%	14.5%	-3.5%
Cows/FTE	209	211	1.0%

5.2.5 Harekeke

Since adopting Halter early in the 2022/23 season, Harakeke has undergone a range of management changes that have significantly enhanced operational efficiency, consistency, and staff engagement. Infrastructure upgrades included the addition of 26 extra troughs, now providing two per paddock. Grazing and herd management evolved from one main herd and a sick cow mob to two main herds and a sick cow herd. This restructure has helped reduce competitive pressure on younger or less dominant cows and contributed to more consistent milk production.

Wintering has become more streamlined, with a key shift being a change of feed from swedes to kale now used for the first two months of winter. Cows are transitioned to a 'bale grazing' system of grass and silage by late July. A management challenge is coastal drift impacting GPS accuracy of up to 1–2 metres per cow in rough weather. Halter however does allow for faster, more consistent feed allocation and easier transitions. Labour efficiency during winter has doubled, primarily due to the removal of physical fence and break setting, which now frees up more time for monitoring and fine-tuning.

Environmental practices have also improved with grazing heat maps being used to selectively exclude the most vulnerable third of paddocks, gateways, and hotspots from fertiliser application. Close proximity grazing near critical source areas (CSAs) is now limited to one-hour intervals, reducing nutrient loading risks. In adverse weather, the use of 4–8 breaks per day (and up to 16 in extreme conditions) helps minimise pugging damage. Nitrogen fertiliser use has dropped by 46 kgN/ha while maintaining increased pasture harvested.

Labour savings are most notable from not having to follow cows into the shed or shift fences, with an additional 0.5–1 hour saved daily. Staff satisfaction has largely lifted, with more consistent decisions being made. Prior to Halter, mating relied on tailpaint and manual heat detection. This has been replaced with reliable digital alerts, keeping reproductive performance steady while significantly reducing effort. Halter's health alerts have led to faster sick cow detection and more targeted interventions.

The technology has driven a shift toward more technical types of people. Challenges such as stock water and fence power issues have emerged due to staff spending less time in paddocks, but these are being addressed, including through renewed emphasis on measuring residuals. The goals of introducing Halter are being met, with the original motivation being to gain efficiencies right across the farming operation, harvest more pasture and to ease pressure on staff through intensive calving and mating periods.

Table 11: Harakeke performance before and post implementation of Halter

Season	Pre-Halter: 2020/21, 2021/22	Halter: 2023/24	Percentage Change
Pasture Eaten – kgDM/ha (Grazed Hectares)	10,150	11,200	10.3%
Kilograms of Milk Solids per Cow – kgMS/cow	477	514	7.8%
Kilograms of Milk Solids per Hectare – kgMS/ha (Total Hectares)	1496	1623	8.5%
Nitrogen Fertiliser -kg N/ha (Total Hectares)	186	140	-24.7%
6 Week in Calf Rate - ICR	74.5%	76.0%	1.5%
Not in Calf (Empty) rate	13.0%	12.7%	0.3%
Cows/FTE	194	228	17.5%

6.0 Common Trends and Insights

6.1 Productivity Gains

Participants across the ten farms all adopted Halter for multiple reasons, many of which were similar. Desired outcomes from the technology largely drove management changes and how Halter was utilised. Some productivity gains were focus areas for farms, while other gains were unexpected or emerged as indirect benefits. The below points describe productivity gains that were largely realised from analysis of participant farms.

6.1.1 Pasture and Grazing Management

Improved grazing strategies were enabled by Halter's real-time data and virtual fencing:

- Many farms increased the frequency of grazing breaks, resulting in increased pasture utilisation and quality.
- Hill grazing benefits with breaks set to differential cover areas.
- Ability to reduce or minimise back-grazing with breaks custom shaped to include stock water sources as required.
- Environmental benefits with multiple breaks per day (one farm reporting up to 16 breaks used per day in adverse conditions).
- Earlier identification of surpluses led to more timely and higher-quality silage production.
- More accurate residual management improved feed conversion efficiency and consistency of cow intake.
- Some participants reported completing spring grazing rounds significantly earlier than before.

6.1.2 Pasture Eaten

Across the 10 case study farms, pasture eaten increased on 9 farms, with only one (Ovation) experiencing a decrease due to drought. On average:

- South Island farms saw a 10.7% increase.
- North Island farms saw a 7.2% increase.
- Average increase across all farms was 8.9%.

The implementation of Halter across a range of North and South Island dairy farms has led to a measurable increase in pasture eaten per grazed hectare, with farms experiencing gains between 4% and 22%, except for Ovation (-7.6% decrease from drought). These improvements were driven by more precise grazing management, including increased grazing frequency with more breaks per day, reduced back-grazing, better feed allocation, and real-time decision-making supported by accurate pasture and animal data. Farms consistently reported improved pasture utilisation, reduced reliance on supplements, and higher feed efficiency. Even under challenging conditions, such as drought, Halter helped maintain production through smarter pasture use. Collectively, these outcomes highlight the role of Halter in enabling more efficient dairy systems.

Table 13: Pasture Eaten before and post implementation of Halter

Farm Name	Pre-Halter Pasture Eaten (t DM/ha)	With Halter Pasture Eaten (t DM/ha)	Change	Island
Willowcliff	10.79	13.19	22.24%	South Island
Harakeke	10.15	11.20	10.34%	South Island
Kokoamo	13.15	14.12	7.38%	South Island
Maronan	12.58	13.35	6.12%	South Island
Waimakariri	12.82	13.74	7.18%	South Island
Mountview	9.40	10.80	14.89%	North Island
Otamatahae	10.80	12.60	16.67%	North Island
Grassmere	10.35	10.80	4.35%	North Island
Ovation	13.65	12.61	-7.61%	North Island
Gray	11.60	12.50	7.76%	North Island
South Island Average	**11.90**	**13.12**	**10.65%**	**South Island**
North Island Average	**11.16**	**11.86**	**7.21%**	**North Island**
Overall Average	**11.53**	**12.49**	**8.93%**	**All**

6.1.3 Labour Efficiency and Time Reallocation

Labour efficiencies and time reallocation was a consistent and substantial productivity gain that has been displayed. Across the farms there were large savings with reduction in labour units and/or more efficient use of staff times. Several farms reported that Halter gave them the ability to hire less experienced workers in the form of backpackers or younger but motivated individuals, while others are now looking for more technical staff capable of utilising Halter. Time savings largely came from tasks including break fencing, cow movement, and heat detection which previously consumed significant daily hours and have been drastically reduced.

For example:

- Several farms reported labour hour reductions to completely remove one or more FTEs.
- Freed-up time was reallocated to higher-value tasks like pasture walks, managing pasture allocation, monitoring cow condition, and completing tasks someone previously at a higher management level would have undertaken.
- Shorter workdays and more structured rosters improved overall staff satisfaction and reduced fatigue and stress, especially during wintering.

Table 12: Change in Number of Full Time Equivalents & Reduction in Hours Worked

Farm Name	Change in FTE	Additional Change in Hours Worked
Harakeke	-0.5	-7.5 hours per week for remaining FTE's
Maronan	-1.0 (Post Calving)	
Willowcliff	-2.0	
Kokoamo	No Change	
Waimakariri	No Change	
Otamatahae	-0.25	- 1 hour per day, per person. – 3 hours per day per person during calving.
Grassmere	-1.5	
Ovation	-0.3	-28.5% total labour hours across the business
Mountview	No Change (Without Halter this would have increased)	-7.0 hours per week reduction for Remaining FTE's
Gray	No Change	

6.1.4 Reproductive Performance

Reproductive efficiency experienced meaningful improvements:

- Several farms saw notable increases in their 6-week in-calf rates and reductions in not-in-calf (empty) rates.
- Optimised use of sexed semen and targeted breeding programmes led to cost savings and improved genetic outcomes.

Table 14: Empty Rate Changes

Farm Name	Pre-Halter Empty Rate (%)	With Halter Empty Rate (%)	Change	Island
Willowcliff	19.0	15.0	-4.0	South Island
Harakeke	13.0	12.7	-0.3	South Island
Kokoamo	9.5	8.0	-1.5	South Island
Maronan	18.0	14.5	-3.5	South Island
Waimakariri	11.0	13.0	2.0	South Island
Mountview	Data Not Available	Data Not Available		North Island
Gray	11.5	12	0.5	North Island
Otamatahae	12.7	10	-2.7	North Island
Grassmere	11.2	9.9	-1.3	North Island
Ovation	19.0	10.5	-8.5	North Island
South Island Average	**14.1**	**12.6**	**-1.5**	**South Island**
North Island Average	**13.6**	**10.6**	**-3.0**	**North Island**
Overall Average	**13.9**	**11.7**	**-2.1**	**All**

Table 15: 6 Week In Calf Rate (ICR) Changes

Farm Name	Pre-Halter 6-Week ICR (%)	With Halter 6-Week ICR (%)	Change	Island
Willowcliff	64.0	69.0	5.0	South Island
Harakeke	74.5	76.0	1.5	South Island
Kokoamo	74.0	76.5	2.5	South Island
Maronan	61.0	67.0	6.0	South Island
Waimakariri	74.0	73.0	-1.0	South Island
Mountview	Data Not Available	Data Not Available		North Island
Gray	76.5	80.0	3.5	North Island
Otamatahae	68.0	75.0	7.0	North Island
Grassmere	68.5	73.0	4.5	North Island
Ovation	69.0	82.0	13.0	North Island
South Island Average	**69.5**	**72.3**	**2.8**	**South Island**
North Island Average	**70.5**	**77.5**	**7.0**	**North Island**
Overall Average	**69.9**	**74.6**	**4.7**	**All**

6.1.5 Animal Health and Welfare

Early detection and real-time alerts improved animal health outcomes:

- Cases of lameness, down cows, and metabolic issues decreased due to more proactive and timely interventions. This had mixed results with some farms having no changes while others experienced great improvements.
- Transition and calving periods became smoother with better management of cow condition, reducing stress and health risks.
- Rumination data helped tailor feeding strategies, supporting recovery post-calving.

6.1.6 Milk Production and Feed Conversion

All farms reported an increase in milk solids per cow, even under challenging conditions such as drought. However, the extent of this increase varied significantly between farms, depending on how effectively Halter was integrated into management practices and day-to-day operations. The improvements in per-cow performance were largely driven by:

- Improved pasture allocation and cow management contributing to consistent or increased production levels.
- Supplement use decreased on some farms, reflecting better pasture efficiency.
- Gains in per-hectare and per-cow production highlighted improved feed conversion and system resilience.

6.1.7 Environmental

Virtual fencing helped reduce the environmental impact of dairy farming. Grazing heatmaps were only utilised at Harakeke farm, but many noted the potential and desire to utilise this part of the technology in the future including Waimakariri which observe the maps. Main environmental gains were made through:

- Targeted exclusion of vulnerable paddock areas, reducing nutrient runoff risks.
- Minimised pugging through easily setting up multiple shifts in wet conditions.
- Improved nitrogen efficiency allowing for reduced fertiliser use while maintaining or increasing productivity.
- Increased production and pasture harvested being displayed on several farms while achieving decreasing nitrogen fertiliser use.

6.1.8 Staff Engagement

A notable cultural shift across all farms was observed since the adoption of Halter. This was seen with:

- More routine work such as shifting breaks becoming automated, saving large amounts of time and reducing stress especially over wet, winter months.
- Staff were largely empowered to make informed decisions that they may not have been able to make confidently or effectively without the support of Halter.
- Recruitment flexibility improved, with some farms preferring technically inclined or less experienced but more engaged team members including recent University graduates – with Halter providing the 'operating system' to the farm.

6.2 Operational Changes

The introduction of Halter across the ten properties has largely resulted in what can be considered as significant productivity gains and improvements. These are only achieved with how the farms have utilised this technology in their system. Therefore, the operational changes made by individual farms since adopting Halter have a significant impact on potential productivity and financial benefits.

6.2.1 Grazing and Pasture Management

The most widespread operational change was in grazing strategy:

- **Breaks/shifts**
  Since adopting Halter, farm systems have largely gone from 1–2 breaks per day, to more intensive, data-informed schedules of 3–8 breaks per day (even 16 breaks in extreme weather). This change along with the associated back-fencing has improved pasture harvested.

- **Fencing**
  The use of virtual fencing has eliminated the need for daily physical break setup. This has not only reduced labour input but also enabled more dynamic and flexible feed allocation. Managers can now adjust paddock sizes on their phone in minutes, resulting in large time savings per day.

- **Pasture Monitoring**
  Accurate monitoring of pasture covers increasing farmers' ability to plan and monitor pastures accurately. As a result, decision-making around pre-grazing covers, surpluses, and paddock rankings has become more accurate.

6.2.2 Herd Size and Calving

- **Smaller / Multiple Herds**
  Many systems transitioned from one or two large herds to multiple smaller mobs, grouped by age, condition, or health status. This change allowed for tailored feed management, reduced walking distance for some cows, and decreased competition.

- **Calving Support**
  Policies were implemented with additional herds and automated breaks during calving that ensure colostrum cows and those close to calving have increased access to fresh grass.

6.2.3 Labour

- **Reduction in Manual Labour and FTE Requirements**
  Physical tasks such as break fencing, getting cows to the shed in the morning, and visual heat detection were largely eliminated post-Halter. Many farms reduced staff numbers, with remaining staff focused on higher-value work with reduced stress and work hours.

- **Staff Management**
  Halter allowed for more flexible start times, shorter workdays, and increased time off due to reduced work requirements from being able to monitor and do tasks from their device.

- **Farm Observation by Staff**
  A challenge that was regularly seen was that staff are spending less time observing out on farm. Strong communication between staff was a way of overcoming this challenge as observed at Willowcliff farm.

6.2.4 Reproductive Strategies

- **Heat Detection**
  Halter largely replaced manual heat detection methods (tail paint, scratchies) with collar-based monitoring, improving accuracy and timeliness.

- **Breeding**
  Post-Halter being installed, breeding in some cases became more selective with sexed semen on some farms only applied to cows with reliable heat histories, and mating periods were streamlined through improved cycle visibility. Some systems also shifted entirely to AI with associated biosecurity benefits and reducing the complications of having bulls on farm.

6.2.5 Wintering

- **Winter Grazing**
  After Halter was implemented, managing break fencing for winter crops became significantly more efficient, saving time and reducing stress by eliminating the need to manually cut and/or set breaks. From an environmental perspective, it also allowed for better responsiveness to weather and ground conditions, improving crop utilisation and minimising pugging.

6.2.6 Environmental

- **Exclusion of Sensitive Areas**
  Ability to graze critical source areas (CSA's) when appropriate, for short periods and reduce possible run-off to streams, and reduced pugging of wet areas. In adverse conditions, cows can be moved off high-risk areas instantly, reducing erosion and nutrient loss.

- **Data-Informed Nutrient Application**
  Post-Halter being implemented, Harakeke farm began integrating grazing heat maps with fertiliser planning, enabling selective exclusion and tailoring nutrient applications. Although this was mostly not used, many farms noted the desire and potential of this piece of technology in the future.

6.2.7 Animal Health and Welfare

- **Earlier Detection and Response**
  Animal health monitoring shifted from reactive to proactive. Rumination and movement data are now used to identify at-risk cows earlier, allowing for faster, targeted interventions.

- **Post-calving**
  Transitions from once-a-day to twice-a-day milking largely being determined by individual rumination data.

7.0 Financial Analysis

7.1.1 Methodology:

A financial analysis has been undertaken across the ten selected farms. The purpose of this financial analysis is to determine the impact implementing Halter has on each farm's financial situation, both pre and post implementation.

Given the variability between seasons and in the quality and detail of available financial data, it was determined that a simplified, standardised approach would better isolate the financial effects directly attributable to changes in the farm system brought about by Halter. This approach reduces external noise and ensures a clearer comparison of relevant financial metrics.

The analysis was based on the farm systems as modelled in Farmax for each property. This provided a robust representation of system-level changes. Dairy Systems Monitoring (DSM) templates were applied to each farm according to its representative region, allowing comparison against regional average benchmarks. These same inputs were applied across each year. It must be noted that this approach is not representative of the exact season, or management changes made as a result of different measures such as input prices, milk price etc. This method attempts to remove external noise from the analysis to best represent the impact of Halter on the business.

The five North Island farms of Mountview, Gray, Otamatahae, Grassmere and Ovation used a DSM North Island template, this utilised an average benchmarking figure for the 2024/25 season from a total of 18 North Island Farms. The South Island farms of Kokoamo, Maronan, Waimakariri and Willowcliff used the DSM Canterbury irrigated template for 2024/25. Harakeke used the DSM Southland template for 2024/25.

Actual financial results are therefore not shown, however a standardised process which uses up to date regional specific data is used with financial changes based on farm system changes as modelled through Farmax Dairy.

7.1.2 Wages

To ensure consistency across seasons a standardised process was implemented to simplify wage expenses. This set a management wage of $110,000, with additional FTEs set at $70,000. This therefore accounts for total reductions in FTEs pre and post implementation of Halter.

It was noted across many farms that not only did the total number of FTE's decrease, but the number of hours worked per employee also decreased. When information was available that stated the decreased hours worked per employee, an adjustment based on the standardised salary in relation to the difference in hours worked was made.
This methodology allows changes in wage costs to be represented, if actual data was used this would not show the true benefit of Halter due to large wage increases within the industry over the same period.

7.1.3 Livestock Sales

Livestock sales values between the pre and post implementation of Halter were held constant. It must be noted that Halter could, and likely would, have some impact on livestock sales - for example, through flow-on effects from changes in stocking rates. Differences in sales may also naturally occur between seasons. However, given the limited data available, it was not considered reliable to attribute any changes directly to Halter. Therefore, to ensure consistency and to clearly isolate the major financial changes attributable to Halter, livestock sales values were standardised across both scenarios.

7.1.4 Milk Price

A milk price of $9.00 was set across all seasons. No dividends or milk quality premiums have been used.

7.1.5 Fuel and Maintenance

Three farms noted a decrease or potential decrease in fuel and vehicle maintenance. It is hard to justify the maintenance cost reduction over a small number of years post implementation of Halter. It must be noted that with less kilometres potentially needed to be travelled that a reduction in fuel and maintenance costs is most probable. However, adequate assumptions to the extent of this are mostly unavailable and therefore could not reliably be represented.

Mountview reported a reduction in race and fence maintenance. This is another maintenance area which has not been accounted for due to limited data justifying the full extent of savings but is a potential benefit across farms.

7.1.6 Halter Cost

The cost of Halter used is included in the ‘other expenses’ section in addition to any other expenses which may have also been incurred.

There are various Halter subscription levels but for the purposes of this exercise Halter was modelled at $14 per cow, per month, based on peak cows milked.

7.2 Ovation Financial Analysis

- Ovation Farms had no decrease in the number of FTE's employed. However, the hours worked reduced by 28.5%. Because of less hours worked, staff were given an hourly pay increase, presumed at 10%. Therefore, this financial analysis for post-Halter assumes a 18.5% reduction in total wage costs.
- Accurate tracking of premating heats now enables targeted use of sexed semen only in cows with three or more heats, improving conception rates and saving $5,000 annually on detection tools. This saving is not demonstrated in the below analysis.
- The use of beef and short gestation semen has lifted beef calf sales. This is not recorded in the below analysis.
- Animal health costs were noted to have risen slightly from $119 to $124 per cow due to increased mastitis in the post halter year. This increase is not recorded and has been standardised based on the DSM template.

Table 16: Ovation Profit and Loss

FARMAX

Compare Forecast Profit and Loss

Jun 21 - May 22

			Pre Halter 202122	Post Halter	Difference
Revenue	Stock	Net Milk Sales - this season	2,332,775	2,528,941	196,166
		Net Livestock Sales	113,571	113,571	0
		Total	2,446,346	2,642,512	196,166
	Total Revenue		**2,446,346**	**2,642,512**	196,166
Expenses	Wages	Wages	154,000	105,160	-48,840
		Management Wage	110,000	110,000	
	Stock	Animal Health	66,490	66,490	
		Breeding	48,800	48,800	
		Farm Dairy	17,690	17,690	
		Electricity	32,940	32,940	
	Feed/Crop	Pasture Conserved	9,625	9,625	
		Feed Crop	43,200	37,200	-6,000
		Bought Feed	292,500	464,037	171,537
		Calf Feed	2,465	2,465	
	Other Farm Working	Fertiliser (Excl. N)	71,720	71,720	
		Nitrogen	100,011	100,011	
		Regrassing	7,200	6,000	-1,200
		Weed & Pest Control	9,240	9,240	
		Vehicle Expenses	33,660	33,660	
		Fuel	22,880	22,880	
		R&M Land/Buildings	73,260	73,260	
		R&M Plant/Equipment	26,400	26,400	
		Freight & Cartage	10,560	10,560	
		Other Expenses	9,460	113,620	104,160
	Overheads	Administration Expenses	53,240	53,240	
		Insurance	28,380	28,380	
		ACC Levies	5,940	5,940	
		Rates	31,240	31,240	
	Total Farm Working Expenses		**1,260,901**	**1,480,558**	219,657
	Depreciation		106,698	115,670	8,972
	Total Farm Expenses		**1,367,599**	**1,596,228**	228,630
Economic Farm Surplus (EFS)			**1,078,747**	**1,046,283**	-32,463
Farm Profit before Tax			**1,078,747**	**1,046,283**	-32,463
Farm Profit per ha before Tax			**4,903**	**4,756**	-148

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.3 Mountview Financial Analysis

- Decreased one FTE in total, noted that current staff are working fewer hours. Price not considered in financials due to no detailed information available surrounding the decrease.
- Reduced race and fencing maintenance were noted but not considered in this analysis due to no data accurately representing this benefit. It was noted that major race work is now only needed every three to four years, and the reduced strain on physical fencing is expected to extend its lifespan.

Table 27: Mountview Profit and Loss

FARMAX **Compare Forecast Profit and Loss**
Jun 20 - May 21

			2020-21 Actuals	2021-22 Actuals	2022-23 Actuals	2023-24 Actuals
Revenue	Stock	Net Milk Sales - this season	1,252,882	1,449,106	1,353,949	1,320,232
		Net Livestock Sales	120,000	120,000	120,000	120,000
		Total	1,372,882	1,569,106	1,473,949	1,440,232
	Total Revenue		**1,372,882**	**1,569,106**	**1,473,949**	**1,440,232**
Expenses	Wages	Wages	175,000	140,000	70,000	70,000
		Management Wage	220,000	55,000	55,000	55,000
	Stock	Animal Health	33,790	32,809	34,008	34,117
		Breeding	24,800	24,080	24,960	25,040
		Farm Dairy	8,990	8,729	9,048	9,077
		Electricity	16,740	16,254	16,848	16,902
	Feed/Crop	Pasture Conserved	12,100			22,358
		Feed Crop	124,640	15,480	27,360	22,320
		Bought Feed	90,413	113,616	78,403	157,783
		Calf Feed	1,572	816	674	1,244
	Grazing	Owned Run-Off Adj.	80,176	91,696	47,213	90,876
	Other Farm Working	Fertiliser (Excl. N)	49,552	49,552	49,552	49,552
		Nitrogen	3,742	3,936		
		Irrigation	14,896	14,896	14,896	14,896
		Weed & Pest Control	6,384	6,384	6,384	6,384
		Vehicle Expenses	23,256	23,256	23,256	23,256
		Fuel	15,808	15,808	15,808	15,808
		R&M Land/Buildings	50,616	50,616	50,616	50,616
		R&M Plant/Equipment	18,240	18,240	18,240	18,240
		Freight & Cartage	7,296	7,296	7,296	7,296
		Other Expenses	6,536	6,536	64,664	64,328
	Overheads	Administration Expenses	36,784	36,784	36,784	36,784
		Insurance	19,608	19,608	19,608	19,608
		ACC Levies	4,104	4,104	4,104	4,104
		Rates	21,584	21,584	21,584	21,584
	Total Farm Working Expenses		**1,066,628**	**777,080**	**696,306**	**837,172**
	Depreciation		57,305	66,280	61,928	60,385
	Total Farm Expenses		**1,123,933**	**843,360**	**758,234**	**897,558**
Economic Farm Surplus (EFS)			**248,950**	**725,746**	**715,716**	**542,674**
Farm Profit before Tax			**248,950**	**725,746**	**715,716**	**542,674**
Farm Profit per ha before Tax			**1,638**	**4,775**	**4,709**	**3,570**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.4 Grassmere Financial Analysis

- It was noted that the reduction in hours worked and change in daily tasks also contributed to a reduction in motorbike maintenance cost by 13.9%. With only one season to attribute the change directly to Halter this benefit was excluded from this analysis.
- Bought feed in 2021/22 was significantly lower than the 2022/23 and 2023/24 seasons. This difference is not attributable to Halter and is based on several factors which resulted in a favourable farm profit result for 2021/22. A more accurate representation of the changes made by Halter is based on the 2022/23 season, which is the year immediately prior to implementing Halter. The financial analysis results as reported in the financial summary table, pre-Halter are therefore only based on 2022/23 results with 2021/22 results being excluded.

Table 38: Grassmere Profit and Loss

FARMAX **Compare Forecast Profit and Loss**
Jun 23 - May 24

			Grassmere 2021/22 - No Halter	Grassmere 2022/23 - No Halter	Grassmere 2023/24 - Halter
Revenue	Stock	Net Milk Sales - this season	3,865,965	3,373,096	3,481,485
		Net Livestock Sales	419,674	348,784	380,312
		Total	4,285,639	3,721,881	3,861,797
	Total Revenue		**4,285,639**	**3,721,881**	**3,861,797**
Expenses	Wages	Wages	420,000	420,000	315,000
		Management Wage	110,000	110,000	110,000
	Stock	Animal Health	100,934	95,157	95,702
		Breeding	74,080	69,840	70,240
		Farm Dairy	26,854	25,317	25,462
		Electricity	50,004	47,142	47,412
	Feed/Crop	Pasture Conserved	3,300	10,849	4,950
		Feed Crop	75,060	61,830	63,617
		Bought Feed	115,448	635,414	564,046
		Calf Feed	7,612	7,612	7,663
	Grazing	Owned Run-Off Adj.	368,754	409,171	409,985
	Other Farm Working	Fertiliser (Excl. N)	92,845	92,845	92,845
		Nitrogen	31,451	51,226	44,852
		Irrigation	27,910	27,910	27,910
		Regrassing	33,360	27,480	28,303
		Weed & Pest Control	11,962	11,962	11,962
		Vehicle Expenses	43,574	43,574	43,574
		Fuel	29,619	29,619	29,619
		R&M Land/Buildings	94,838	94,838	94,838
		R&M Plant/Equipment	34,176	34,176	34,176
		Freight & Cartage	13,670	13,670	13,670
		Other Expenses	12,246	12,246	161,766
	Overheads	Administration Expenses	68,922	68,922	68,922
		Insurance	36,739	36,739	36,739
		ACC Levies	7,690	7,690	7,690
		Rates	40,442	40,442	40,442
	Total Farm Working Expenses		**1,931,489**	**2,485,671**	**2,451,386**
	Depreciation		179,277	166,936	174,871
	Total Farm Expenses		**2,110,767**	**2,652,607**	**2,626,257**
Economic Farm Surplus (EFS)			**2,174,873**	**1,069,273**	**1,235,540**
Farm Profit before Tax			**2,174,873**	**1,069,273**	**1,235,540**
Farm Profit per ha before Tax			**7,636**	**3,754**	**4,338**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.5 Gray Financial Analysis

Table 49: Gray Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 23 - May 24

			Basefile 2020/ 21 no Halter	Basefile 2021/ 22 no Halter	Basefile 2023/ 24 with Halter	Basefile 2024/ 25 with Halter
Revenue	Stock	Net Milk Sales - this season	1,546,020	1,569,982	1,446,020	1,657,832
		Net Livestock Sales	166,820	166,870	166,807	166,836
		Total	1,712,840	1,736,852	1,612,827	1,824,668
	Total Revenue		**1,712,840**	**1,736,852**	**1,612,827**	**1,824,668**
Expenses	Wages	Wages	70,000	70,000	70,000	70,000
		Management Wage	110,000	110,000	110,000	110,000
	Stock	Animal Health	51,448	51,884	52,211	54,173
		Breeding	37,760	38,080	38,320	39,760
		Farm Dairy	13,688	13,804	13,891	14,413
		Electricity	25,488	25,704	25,866	26,838
	Feed/Crop	Pasture Conserved	10,500	10,500	10,500	10,500
		Feed Crop	24,900	24,900	24,900	47,300
		Bought Feed	131,048	116,954	126,286	87,758
		Calf Feed	3,805	3,805	3,805	3,805
	Grazing	Grazing	209,601	209,601	209,601	209,040
	Other Farm Working	Fertiliser (Excl. N)	56,398	56,398	56,398	56,398
		Nitrogen	28,944	27,636	39,172	28,421
		Regrassing	9,960	9,960	9,960	9,960
		Weed & Pest Control	7,266	7,266	7,266	7,266
		Vehicle Expenses	26,469	26,469	26,469	26,469
		Fuel	17,992	17,992	17,992	17,992
		R&M Land/Buildings	57,609	57,609	57,609	57,609
		R&M Plant/Equipment	20,760	20,760	20,760	20,760
		Freight & Cartage	8,304	8,304	8,304	8,304
		Other Expenses	7,439	7,439	88,415	91,439
	Overheads	Administration Expenses	41,866	41,866	41,866	41,866
		Insurance	22,317	22,317	22,317	22,317
		ACC Levies	4,671	4,671	4,671	4,671
		Rates	24,566	24,566	24,566	24,566
	Total Farm Working Expenses		**1,022,799**	**1,008,486**	**1,111,145**	**1,091,625**
	Depreciation		70,713	71,809	66,139	75,827
	Total Farm Expenses		**1,093,512**	**1,080,294**	**1,177,284**	**1,167,452**
Economic Farm Surplus (EFS)			**619,328**	**656,558**	**435,543**	**657,216**
Farm Profit before Tax			**619,328**	**656,558**	**435,543**	**657,216**
Farm Profit per ha before Tax			**3,580**	**3,795**	**2,518**	**3,799**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.6 Otamatahae Financial Analysis

- On average before the introduction of Halter in the seasons from 2018/19 to 2021/22 production per cow and per grazed hectare was already tracking upwards. Since the implementation of Halter these increases were boosted even further.
- It was noted that the use of petrol and motorbike associated maintenance has reduced by 40%. This was not recorded in these financial results as the exact value of these expenses were unknown.

Table 20: Otamatahae Profit and Loss

FARMAX **Compare Forecast Profit and Loss**

Jun 18 - May 19

			Otamatahae 18/19 Actual Performance 1	Otamatahae 19/20 Actual Performance 1	Otamatahae 20/21 Actual Performance 1	Otamatahae 21/22 Actual Performance 1	Otamatahae 22/23 Actual Performance 1	Otamatahae 23/24 Actual Performance 1
Revenue	Stock	Net Milk Sales - this season	2,103,126	1,937,113	2,349,953	2,531,432	2,673,726	2,792,625
		Net Livestock Sales	124,950	124,950	124,950	124,950	124,950	124,950
		Total	2,228,077	2,062,062	2,474,903	2,656,383	2,798,676	2,917,575
	Total Revenue		**2,228,077**	**2,062,062**	**2,474,903**	**2,656,383**	**2,798,676**	**2,917,575**
Expenses	Wages	Wages	315,000	315,000	315,000	315,000	239,150	291,650
		Management Wage	110,000	110,000	110,000	110,000	110,000	110,000
	Stock	Animal Health	73,030	74,338	75,428	74,992	74,229	77,826
		Breeding	53,600	54,560	55,360	55,040	54,480	57,120
		Farm Dairy	19,430	19,778	20,068	19,952	19,749	20,706
		Electricity	36,180	36,828	37,368	37,152	36,774	38,556
	Feed/Crop	Pasture Conserved	58,512	13,690	27,377	46,756	28,080	41,130
		Feed Crop			38,185	43,680	32,495	
		Bought Feed	48,152		124,081	369,724	476,436	217,362
		Calf Feed	16,375		35,434	34,820	36,297	6,675
	Grazing	Grazing	160,206	126,975	96,468	170,196	253,112	287,123
	Other Farm Working	Fertiliser (Excl. N)	89,161	89,161	89,161	89,161	89,161	89,161
		Nitrogen	146,274	118,795	55,789	78,479	14,399	72,577
		Regrassing			37,260	18,180	31,620	2,820
		Weed & Pest Control	11,487	11,487	11,487	11,487	11,487	11,487
		Vehicle Expenses	41,846	41,846	41,846	41,846	41,846	41,846
		Fuel	28,444	28,444	28,444	28,444	28,444	28,444
		R&M Land/Buildings	91,076	91,076	91,076	91,076	91,076	91,076
		R&M Plant/Equipment	32,820	32,820	32,820	32,820	32,820	32,820
		Freight & Cartage	13,128	13,128	13,128	13,128	13,128	13,128
		Other Expenses	11,761	11,761	11,761	11,761	129,193	130,873
	Overheads	Administration Expenses	66,187	66,187	66,187	66,187	66,187	66,187
		Insurance	35,282	35,282	35,282	35,282	35,282	35,282
		ACC Levies	7,385	7,385	7,385	7,385	7,385	7,385
		Rates	38,837	38,837	38,837	38,837	38,837	38,837
	Total Farm Working Expenses		**1,504,171**	**1,337,376**	**1,495,230**	**1,841,383**	**1,991,665**	**1,810,069**
	Depreciation		96,194	88,601	107,483	115,784	122,292	134,299
	Total Farm Expenses		**1,600,365**	**1,425,977**	**1,602,713**	**1,957,166**	**2,113,957**	**1,944,368**
Economic Farm Surplus (EFS)			**627,712**	**636,086**	**872,190**	**699,216**	**684,719**	**973,207**
Farm Profit before Tax			**627,712**	**636,086**	**872,190**	**699,216**	**684,719**	**973,207**
Farm Profit per ha before Tax			**2,295**	**2,326**	**3,189**	**2,557**	**2,504**	**3,558**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.7 Waimakariri Financial Analysis

Table 21: Waimakariri Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 20 - May 21

			Base File 2020/21	Base File 2021/22	Halter File 2022/23	Halter File 2023/24
Revenue	Stock	Net Milk Sales - this season	3,889,640	4,083,771	4,059,087	4,387,231
		Net Livestock Sales	153,169	153,165	153,168	153,166
		Total	4,042,810	4,236,936	4,212,255	4,540,396
	Crop & Feed	Capital Value Change	0	0	0	0
		Total	0	0	0	0
	Total Revenue		**4,042,809**	**4,236,936**	**4,212,256**	**4,540,396**
Expenses	Wages	Wages	296,100	296,100	296,100	296,100
		Management Wage	110,000	110,000	110,000	110,000
	Stock	Animal Health	145,725	149,640	148,190	142,390
		Breeding	75,375	77,400	76,650	73,650
		Farm Dairy	18,090	18,576	18,396	17,676
		Electricity	38,190	39,216	38,836	37,316
	Feed/Crop	Pasture Conserved	117,648	96,444	81,016	142,158
		Feed Crop	78,048	74,400	74,400	74,400
		Bought Feed	229,220	277,382	201,469	250,669
		Calf Feed	6,211	6,221	6,205	6,217
	Grazing	Grazing	322,235	319,429	315,000	310,993
	Other Farm Working	Fertiliser (Excl. N)	87,138	87,138	87,138	87,138
		Nitrogen	132,814	132,814	132,814	132,814
		Irrigation	148,320	148,320	148,320	148,320
		Weed & Pest Control	7,416	7,416	7,416	7,416
		Vehicle Expenses	33,990	33,990	33,990	33,990
		Fuel	33,990	33,990	33,990	33,990
		R&M Land/Buildings	123,600	123,600	123,600	123,600
		Freight & Cartage	3,090	3,090	3,090	3,090
		Other Expenses			171,864	168,672
	Overheads	Administration Expenses	58,710	58,710	58,710	58,710
		Insurance	40,170	40,170	40,170	40,170
		ACC Levies	9,270	9,270	9,270	9,270
		Rates	24,720	24,720	24,720	24,720
	Total Farm Working Expenses		**2,140,071**	**2,168,036**	**2,241,354**	**2,333,469**
	Depreciation					
	Total Farm Expenses		**2,140,071**	**2,168,036**	**2,241,354**	**2,333,469**
Economic Farm Surplus (EFS)			**1,902,739**	**2,068,900**	**1,970,901**	**2,206,927**
Farm Profit before Tax			**1,902,739**	**2,068,900**	**1,970,901**	**2,206,927**
Farm Profit per ha before Tax			**6,158**	**6,695**	**6,378**	**7,142**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.8 Willowcliff Financial Analysis

- Another observation (not fully quantified yet) is that mileage and maintenance requirements of motorbikes have been reduced.

Table 22: Willowcliff Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 21 - May 22

			2021/22 Halter ROI - Base File Pre-Halter	2022/23 Halter ROI - Base File-Halter	2023/24 Halter ROI - Base File-Halter
Revenue	Stock	Net Milk Sales - this season	5,072,216	5,811,769	6,024,072
		Net Livestock Sales	211,102	211,102	211,102
		Total	5,283,319	6,022,871	6,235,174
	Crop & Feed	Capital Value Change	0	0	0
		Total	0	0	0
	Total Revenue		**5,283,319**	**6,022,871**	**6,235,174**
Expenses	Wages	Wages	455,000	315,000	315,000
		Management Wage	110,000	110,000	110,000
	Stock	Animal Health	180,380	172,985	180,525
		Breeding	93,300	89,475	93,375
		Farm Dairy	22,392	21,474	22,410
		Electricity	47,272	45,334	47,310
	Feed/Crop	Pasture Conserved	5,040	5,040	5,040
		Feed Crop	69,000	85,100	85,100
		Bought Feed	538,274	790,265	665,553
		Calf Feed	7,548	7,553	7,549
	Grazing	Grazing	740,689	843,007	759,699
	Other Farm Working	Fertiliser (Excl. N)	102,225	102,225	102,225
		Nitrogen	77,619	139,005	140,199
		Irrigation	174,000	174,000	174,000
		Regrassing	23,920	23,920	23,920
		Weed & Pest Control	8,700	8,700	8,700
		Vehicle Expenses	39,875	39,875	39,875
		Fuel	39,875	39,875	39,875
		R&M Land/Buildings	145,000	145,000	145,000
		Freight & Cartage	3,625	3,625	3,625
		Other Expenses		221,256	213,192
	Overheads	Administration Expenses	68,875	68,875	68,875
		Insurance	47,125	47,125	47,125
		ACC Levies	10,875	10,875	10,875
		Rates	29,000	29,000	29,000
	Total Farm Working Expenses		**3,039,609**	**3,538,589**	**3,338,047**
	Depreciation				
	Total Farm Expenses		**3,039,609**	**3,538,589**	**3,338,047**
Economic Farm Surplus (EFS)			**2,243,710**	**2,484,281**	**2,897,127**
Farm Profit before Tax			**2,243,710**	**2,484,281**	**2,897,127**
Farm Profit per ha before Tax			**6,190**	**6,853**	**7,992**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.9 Maronan Financial Analysis

Table 23: Maronan Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 22 - May 23

			202223 Actual pre-Halter	202324 Actual post-Halter	Difference
Revenue	Stock	Net Milk Sales - this season	5,396,314	5,793,733	397,419
		Net Livestock Sales	188,475	188,475	0
		Total	5,584,789	5,982,208	397,419
	Total Revenue		**5,584,789**	**5,982,208**	397,419
Expenses	Wages	Wages	420,000	385,000	-35,000
		Management Wage	110,000	110,000	
	Stock	Animal Health	210,975	213,730	2,755
		Breeding	109,125	110,550	1,425
		Farm Dairy	26,190	26,532	342
		Electricity	55,290	56,012	722
	Feed/Crop	Pasture Conserved	9,072	4,788	-4,284
		Feed Crop	32,620	32,620	
		Bought Feed	314,872	313,971	-901
		Calf Feed	13,134	13,163	29
	Grazing	Grazing	888,336	897,124	8,788
	Other Farm Working	Fertiliser (Excl. N)	115,056	115,056	
		Nitrogen	184,502	185,433	931
		Irrigation	195,840	195,840	
		Weed & Pest Control	9,792	9,792	
		Vehicle Expenses	44,880	44,880	
		Fuel	44,880	44,880	
		R&M Land/Buildings	163,200	163,200	
		Freight & Cartage	4,080	4,080	
		Other Expenses		247,800	247,800
	Overheads	Administration Expenses	77,520	77,520	
		Insurance	53,040	53,040	
		ACC Levies	12,240	12,240	
		Rates	32,640	32,640	
	Total Farm Working Expenses		**3,127,285**	**3,349,891**	222,607
	Depreciation				
	Total Farm Expenses		**3,127,285**	**3,349,891**	222,607
Economic Farm Surplus (EFS)			**2,457,505**	**2,632,317**	174,812
Farm Profit before Tax			**2,457,505**	**2,632,317**	174,812
Farm Profit per ha before Tax			**6,023**	**6,452**	428

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.10 Kokoamo Financial Analysis

Table 24: Kokoamo Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 22 - May 23

			Base Pre-Halter File 2022-23	Kokoamo Halter File 2023-24	Difference
Revenue	Stock	Net Milk Sales - this season	8,312,027	8,667,832	355,805
		Net Livestock Sales	220,606	220,731	125
		Total	8,532,633	8,888,563	355,930
	Crop & Feed	Capital Value Change	0		0
		Total	0		0
	Total Revenue		**8,532,633**	**8,888,563**	355,930
Expenses	Wages	Wages	630,000	630,000	
		Management Wage	110,000	110,000	
	Stock	Animal Health	260,710	259,985	-725
		Breeding	134,850	134,475	-375
		Farm Dairy	32,364	32,274	-90
		Electricity	68,324	68,134	-190
	Feed/Crop	Pasture Conserved	21,773	26,208	4,435
		Feed Crop	92,000	88,320	-3,680
		Bought Feed	523,098	655,867	132,769
		Calf Feed	10,028	10,017	-11
	Grazing	Grazing	1,092,562	980,836	-111,726
	Other Farm Working	Fertiliser (Excl. N)	143,820	143,820	
		Nitrogen	208,786	191,545	-17,241
		Irrigation	244,800	244,800	
		Regrassing	23,920	23,920	
		Weed & Pest Control	12,240	12,240	
		Vehicle Expenses	56,100	56,100	
		Fuel	56,100	56,100	
		R&M Land/Buildings	204,000	204,000	
		Freight & Cartage	5,100	5,100	
		Other Expenses		302,064	302,064
	Overheads	Administration Expenses	96,900	96,900	
		Insurance	66,300	66,300	
		ACC Levies	15,300	15,300	
		Rates	40,800	40,800	
	Total Farm Working Expenses		**4,149,875**	**4,455,105**	305,230
	Depreciation				
	Total Farm Expenses		**4,149,875**	**4,455,105**	305,230
Economic Farm Surplus (EFS)			**4,382,759**	**4,433,457**	50,699
Farm Profit before Tax			**4,382,759**	**4,433,457**	50,699
Farm Profit per ha before Tax			**8,594**	**8,693**	99

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.11 Harakeke Financial Analysis

Table 25: Harakeke Profit and Loss

FARMAX — **Compare Forecast Profit and Loss**
Jun 20 - May 21

			Pre-Halter - 2020-21 season	Pre-Halter - 2021-22 season	Post-Halter - 2022-23 season	Post-Halter - 2023-24 season
Revenue	Stock	Net Milk Sales - this season	2,895,976	2,921,985	3,119,494	3,157,459
		Net Livestock Sales	110,442	110,442	110,442	110,442
		Total	3,006,418	3,032,426	3,229,936	3,267,901
	Crop & Feed	Capital Value Change	1	0	0	0
		Total	1	0	0	0
	Total Revenue		**3,006,419**	**3,032,426**	**3,229,936**	**3,267,901**
Expenses	Wages	Wages	175,000	175,000	140,000	151,135
		Management Wage	110,000	110,000	110,000	110,000
	Stock	Animal Health	76,840	76,727	77,066	77,292
		Breeding	59,840	59,752	60,016	60,192
		Farm Dairy	25,840	25,802	25,916	25,992
	Feed/Crop	Pasture Conserved	92,594	187,556	79,634	99,159
		Feed Crop	15,000	15,000	15,000	15,000
		Bought Feed	177,703	129,882	205,761	152,752
		Calf Feed	65	65	65	65
	Grazing	Grazing	435,322	432,627	434,783	435,173
		Run-Off Lease	11,718	11,718	11,718	11,718
	Other Farm Working	Fertiliser (Excl. N)	61,845	61,845	61,845	61,845
		Nitrogen	99,709	128,146	80,596	45,012
		Regrassing	18,333	18,333	18,333	18,333
		Weed & Pest Control	3,689	3,689	3,689	3,689
		Vehicle Expenses	26,257	26,257	26,257	26,257
		Fuel	21,483	21,483	21,483	21,483
		R&M Land/Buildings	72,261	72,261	72,261	72,261
		R&M Plant/Equipment	26,474	26,474	26,474	26,474
		Freight & Cartage	4,557	4,557	4,557	4,557
		Other Expenses	10,416	10,416	125,160	125,496
	Overheads	Administration Expenses	41,881	41,881	41,881	41,881
		Insurance	22,785	22,785	22,785	22,785
		ACC Levies	3,689	3,689	3,689	3,689
		Rates	22,568	22,568	22,568	22,568
	Total Farm Working Expenses		**1,615,869**	**1,688,513**	**1,691,537**	**1,634,808**
	Depreciation					
	Total Farm Expenses		**1,615,869**	**1,688,513**	**1,691,537**	**1,634,808**
Economic Farm Surplus (EFS)			**1,390,550**	**1,343,913**	**1,538,398**	**1,633,093**
Farm Profit before Tax			**1,390,550**	**1,343,913**	**1,538,398**	**1,633,093**
Farm Profit per ha before Tax			**6,408**	**6,193**	**7,089**	**7,526**

EFS is a measure of farm business profitability independent of ownership or funding, used to compare performance between farms.
EFS should include an adjustment for unpaid family labour and management. This can be added to the expense database as management wage.

Farmax Dairy 8.3.5.26

7.12 Financial Summary

The analysis of the ten selected farms delivered very promising results which suggest that it is possible to deliver significant gains in EBIT with Halter. Every farm except for Ovation showed positive returns, with Ovation recording a 3% decline which can largely be attributed to drought. The North and South Islands on average had very similar results, with the South Island recording a +13.6% increase in EBIT with a +12.8% increase recorded over the North Island Farms. These are significant gains resulting in large increases in farm profitability with a total average increase of +13.2%.

Some farms had notable increases compared to others with six farms seeing an increase higher than 10%. The highest three increases in EBIT were Otamatahae (37%), Willowcliff (29%), and Harakeke (19%).

The increase seen at Otamatahae is substantial, however it is too early to determine if this change can directly be correlated to Halter. The farm has seen high EBIT returns in the past such as 2020/21 which saw $3,189/ha before dropping off to $2,557/ha the following season. The first/implementation year saw $2,504/ha compared to $3,558/ha in the second-year post implementation. The next several seasons will show if this was a positive outlier or if this is the new normal.

Willowcliff managed to get a 29% increase in EBIT through increasing pasture eaten by 22.2%, associated with an 80% increase in nitrogen per hectare or 72kg/ha. This increase in Nitrogen use was a factor in lifting milk solids per cow by 17%. For context, the increase in tonnes of dry matter harvested was 2.4 tDM/ha. If we were to assume a 10:1 response rate for nitrogen usage, applying 72kg per hectare of nitrogen would equate to 720kg DM/ha grown. Whilst the increase in nitrogen usage contributed to additional pasture harvested it was not the main factor for the increase in pasture harvested.

Harakeke delivered impressive results with 19% increase in EBIT associated with increases of 10% for pasture eaten, 8.5% kgMS/ha, 17.5% increase to cows/FTE. Positive reproductive results were shown as well as decreased lameness of 60%, all while using 25% less nitrogen fertiliser per hectare.

Table 26: Financial Summary Table

Farm Name	EBIT pre-Halter ($/ha)	EBIT post-Halter ($/ha) - Latest Available Season	Percentage Change in EBIT
Harakeke	$6,301	$7,526	19.4%
Maronan	$6,023	$6,452	7.1%
Willowcliff	$6,190	$7,992	29.1%
Kokoamo	$8,594	$8,693	1.2%
Waimakariri	$6,427	$7,142	11.1%
Otamatahae	$2,592	$3,558	37.3%
Grassmere	$3,754	$4,338	15.6%
Ovation	$4,903	$4,756	-3.0%
Mountview	$3,207	$3,570	11.3%
Gray	$3,688	$3,799	3.0%
South Island Average	**$6,707**	**$7,561**	**13.6%**
North Island Average	**$3,629**	**$4,004**	**12.8%**
Total Average (South & North Island)	**$5,168**	**$5,783**	**13.2%**

8.0 Reproductive Benefits

In the financial analysis that has been undertaken the full reproductive changes have not been displayed. To show the increases in operating profit through reproductive performance an additional analysis has been undertaken which estimates the overall worth of changes in 6-week in calf and not-in calf rates. [1]

The following tables do not capture all variables influencing reproductive outcomes, nor do they reflect guaranteed results. Actual on-farm performance may vary due to environmental conditions, herd health, management practices, and other external factors. As such, this analysis should be considered a representation of possible improvements, not a precise forecast.

Other factors of potential impact not considered in either analysis are the benefits of increasing use of AB for genetic gain, sexed semen or beef on dairy. Some of these reproductive benefits take time for the full impacts to be observed,

8.1.1 Willowcliff

Table 27: Willowcliff Reproductive Benefits

Herd Information			
No. of Cows	1269		
Actual 6-week In-Calf rate (%)	64.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	69.0%	5.0%	
Actual Not-in-calf rate (%)	19.0%	Decrease	
Likely empty rate due to Halter	15.0%	4.0%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	5.0%		
Estimated benefit in closing gap	**$72,968**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	4.0%		
Estimated benefit in closing gap	**$50,760**		
What is closing your overall herd reproductive performance 'gap' worth?	**$123,728**		

[1] https://www.dairynz.co.nz/media/23ohmz3b/economics-of-reproductive-performance-v3.pdf

8.1.2 Harakeke

Table 28: Harakeke Reproductive Benefits

Herd Information			
No. of Cows	685		
Actual 6-week In-Calf rate (%)	74.5%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	76.5%	1.5%	
Actual Not-in-calf rate (%)	13.0%	Decrease	
Likely empty rate due to Halter	12.7%	0.3%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	1.5%		
Estimated benefit in closing gap	**$11,816**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	0.3%		
Estimated benefit in closing gap	**$2,055**		
What is closing your overall herd reproductive performance 'gap' worth?	**$13,871**		

8.1.3 Kokoamo

Table 29: Kokoamo Reproductive Benefits

Herd Information			
No. of Cows	1798		
Actual 6-week In-Calf rate (%)	74.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	76.5%	2.5%	
Actual Not-in-calf rate (%)	9.5%	Decrease	
Likely empty rate due to Halter	8.0%	1.5%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	2.5%		
Estimated benefit in closing gap	**$51,693**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	1.5%		
Estimated benefit in closing gap	**$26,970**		
What is closing your overall herd reproductive performance 'gap' worth?	**$78,663**		

8.1.4 Maronan

Table 30: Maronan Reproductive Benefits

Herd Information			
No. of Cows	1475		
Actual 6-week In-Calf rate (%)	61.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	67.0%	6.0%	
Actual Not-in-calf rate (%)	18.0%	Decrease	
Likely empty rate due to Halter	14.5%	-3.5%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	6.0%		
Estimated benefit in closing gap	**$101,775**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	3.5%		
Estimated benefit in closing gap ($)	**$51,625**		
What is closing your overall herd reproductive performance 'gap' worth?	**$153,400**		

8.1.5 Waimakariri

Table 31: Waimakariri Reproductive Benefits

Herd Information			
No. of Cows	1004		
Actual 6-week In-Calf rate (%)	74.0%	Decrease	
Likely 6-week in-calf rate due to Halter (industry target 78%)	73.0%	-1.0%	
Actual Not-in-calf rate (%)	11.0%	Increase	
Likely empty rate due to Halter	13.0%	-2.0%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	-1.0%		
Estimated benefit in closing gap	**-$11,546**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	-2.0%		
Estimated benefit in closing gap ($)	**-$20,080**		
What is closing your overall herd reproductive performance 'gap' worth?	**-$31,626**		

8.1.6 Gray

Table 32: Gray Reproductive Benefits

Herd Information			
No. of Cows	500		
Actual 6-week In-Calf rate (%)	76.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	80.0%	4.0%	
Actual Not-in-calf rate (%)	11.5%	Increase	
Likely empty rate due to Halter	12.0%	-0.5%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	4.0%		
Estimated benefit in closing gap	**$23,000**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	-0.5%		
Estimated benefit in closing gap	**-$2,500**		
What is closing your overall herd reproductive performance 'gap' worth?	**$20,500**		

8.1.7 Otamatahae

Table 33: Otamatahae Reproductive Benefits

Herd Information			
No. of Cows	709		
Actual 6-week In-Calf rate (%)	68.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	75.0%	7.0%	
Actual Not-in-calf rate (%)	12.7%	Decrease	
Likely empty rate due to Halter	10.0%	2.7%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	7.0%		
Estimated benefit in closing gap	**$57,075**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	2.7%		
Estimated benefit in closing gap	**$19,143**		
What is closing your overall herd reproductive performance 'gap' worth?	**$76,218**		

8.1.8 Grassmere

Table 34: Grassmere Reproductive Benefits

Herd Information			
No. of Cows	890		
Actual 6-week In-Calf rate (%)	68.5%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	73.0%	4.5%	
Actual Not-in-calf rate (%)	11.2%	Decrease	
Likely empty rate due to Halter	9.9%	1.3%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	4.5%		
Estimated benefit in closing gap	**$46,058**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	1.3%		
Estimated benefit in closing gap	**$11,570**		
What is closing your overall herd reproductive performance 'gap' worth?	**$57,628**		

8.1.9 Ovation

Table 35: Ovation Reproductive Benefits

Herd Information			
No. of Cows	620		
Actual 6-week In-Calf rate (%)	69.0%	Improvement	
Likely 6-week in-calf rate due to Halter (industry target 78%)	82.0%	13.0%	
Actual Not-in-calf rate (%)	19.0%	Decrease	
Likely empty rate due to Halter	10.5%	8.5%	
What is closing your 6-week in-calf rate 'gap' worth?		Milk Price	$9.00
6-week In-Calf rate Gap (%)	13.0%		
Estimated benefit in closing gap	**$92,690**		
What is closing your not-in-calf rate 'gap' worth?			
Not-in-calf rate gap (%)	8.5%		
Estimated benefit in closing gap	**$52,700**		
What is closing your overall herd reproductive performance 'gap' worth?	**$145,390**		

8.1.10 Mountview

*Data Unavailable

9.0 Management and Decision-Making Changes

The integration of Halter into the ten selected farms has resulted in management and decision-making changes. These changes are different across the farms based on management structures, however, there are some great similarities and trends.

Many farms made changes into long standing policies such as herd sizes, mating, pasture management and wintering purely through the options which they now have due to Halter. There appears to be a large trust in the accuracy of Halter's data, to the extent that this is driving key management decisions on the farm. Grazing plans, feed strategies, and reproduction programmes can be adjusted quicker, leading to more efficient outcomes due to response times for key decisions being reduced. There appears to be quicker, more informed accurate decisions consistently being displayed across the farms. An example of this is with animal health, changes in behaviour can trigger immediate action, rather than waiting for routine checks.

The use of data from Halter has seen key shifts for staff and labour on farm. Some farms now find that they can employ less experienced staff. These may be younger, motivated people. These types of people can develop an understanding of the farming system in a short space of time due to information which Halter now offers. In general, staff seem to be taking on more decision making, with more accurate performance and results being shown. This is largely through pasture management and allocation, the accuracy and consistency across the farms is seen to be higher due to the reliability of the information being provided. Willowcliff Farm reported staff are more engaged and that the pasture module is a significant factor in this due to improved decision making. The general trend suggests staff are more engaged, less stressed, and are making more informed, accurate decisions on a consistent basis. Some staff are reported to be making manager level decisions with Harakeke farm reporting that Halter gives staff "the ability to make 95% of the decisions of a farm owner".

Overall, decisions made by staff are more accurate and consistent with the information Halter offers compared to previous systems used. Engagement at all levels of the farm seem to typically have increased due to Halter. This on the most part is because staff have a clear understanding of why decisions are being made.

10.0 Recommendations

Based on the analysis of the ten case study farms it is clear that the adoption of Halter has delivered consistent improvements in pasture management, labour efficiency, animal performance, and overall farm productivity. For other farmers considering its adoption, it is important to understand that the greatest potential of the technology can be realised when it's used to support wider management changes across the farm. The most successful farms in terms of getting the most benefit after incorporating Halter made a number of key changes including:

- Increased frequency of breaks which delivered more consistent dry matter intake across the day, reduced back-grazing, increased utilisation and improved residuals.
- Herd structures were reorganised based on age, condition, and/or rumination data, allowing for more targeted feeding and reducing competition within mobs. This approach also enabled strategic decisions such as creating once a day herd or minimising walking distances for specific groups thus improving overall herd performance.
- Enhanced calving management by having fresh grass for calving cows, and early breaks for colostrum cows.
- Halter break fencing of winter crop resulting in large time savings and improved staff satisfaction. This improved management and control of grazing led to reductions in pugging and increased feed utilisation.
- More strategically focused staff jobs with a reduction in manual routine work such as getting cows in or fencing.

As demonstrated throughout the case studies, the future of on-farm productivity and efficiency of Halter is largely dependent on the ability to utilise the information and technology into decision making and management. What these farms show is that significant gains can be made not by adding more inputs, but by using existing resources more effectively. This offers huge potential in a time where there is tension between environmental outcomes and maintaining production and profit at the farm level. Improvements in pasture eaten, milk solids per cow, and labour efficiency were not the result of huge system changes, but of better grazing management and timely adjustments done consistently which was made possible by Halter. Supporting staff with accurate and good information that is readily available can increase the timeliness and efficiency of decision making.

Opportunities for further analysis will largely be the continued gains that these farms, and for others that have adopted Halter will see in the upcoming seasons. Most farms analysed have only used Halter for one or two seasons. Season one is often an implementation year, where full gains are not yet observed. Further analysis in upcoming years would help to gain a deeper data set and understanding of the true potential of the technology. In some cases, the full potential may not yet have been reached. Deeper benchmarking across farms and regions would also help quantify the long-term economic and environmental return on investment especially considering environmental differences observed between seasons.

AgFirst Waikato (2016) Ltd
1 Melody Lane, Ruakura, Hamilton.
PO Box 9466, Hamilton 3240, New Zealand.
Ph: +64 7 839 2683
waikato@agfirst.co.nz | www.agfirst.co.nz