



Otamatahae Case Study

Executive Summary

Otamatahae farm near Whakamaru is living proof that the future of dairy farming lies not necessarily in new infrastructure, more inputs or more hours – but in better information, timely decisions and smarter systems.

Since adopting Halter, the well performing farm has increased pasture eaten by nearly a tonne per hectare while using less nitrogen and lifted per-cow production – all while reducing hours worked. This case study is a story about redefining what is possible when technology does not just collect data but translates it into opportunity.

Table 1: 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%
Lameness	51	77	52.5%
Earnings Before Interest and Taxes (EBIT) Per Hectare	\$2592	\$3558	37.3%

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Farm Background

The family-owned dairy operation near Whakamaru has been owned by Steve and Donna Hines since 2006. It comprises of the 273 effective hectare dairy farm and a leased support block. The farm peak milks 700 cows through a 50-bale rotary cow shed. The dairy platform is rolling too steep in parts, subdivided into paddocks up to 4.5 hectares in size.

The team, including 5 full-time staff, operate a system 3 feed system, feeding palm kernel in the shoulder months of the season and importing forage from the run-off. Cows are wintered on kale, and turnips are grown most years to fill a summer feed deficit. Since the adoption of Halter, their cross-bred herd achieved 462kg MS/cow for the 2023/24 season, producing 1,197 kg MS/ha.

The Why

The Otamatahae operation has a strong history of staff retention, using technology to support decision making and embracing cow wearables, but when Halter entered the market in 2020 they could see clear benefits for their operation. In 2022 Halter was set up on the farm with three clear goals in mind:

- Reducing workload pressure while better utilising their existing infrastructure.
- Growing and harvesting more pasture while reducing reliance on synthetic nitrogen.
- Increasing milk production.

In addition, their hope was to improve mating performance and increase everyone's confidence around decision making.

Management Changes Made

Once the stock and the staff had been trained in the use of Halter, the team went to work, teaching Halter about their farm. 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. Over time, this discipline has improved the pasture model to the point where the time spent on pasture management could be reduced without impacting outcomes. At the same time, the regular assessment of previous decisions has fine-tuned daily decision making and increased confidence.

Deploying virtual fencing on large paddocks with, in parts, steep hillsides brought rapid pasture growth improvements and labour savings. The team have always used tools including tow behind pasture meters and spring rotation planners to support their daily decision making. In the past, the herds were generally not back-fenced and could be going into the same paddock up to three days in a row. The change to Halter has not only freed up time in the day but has also turned accurate pasture allocation into a job that takes seconds, rather than hours. Now cows are consistently back-fenced in large paddocks, eliminating back grazing and increasing growth rates. Steep paddocks are break fenced with ease, increasing their productivity.

A limiting shed size and long hours in the shed for staff were restricting the team's ability to increase pasture harvested through grazing pressure. "We always felt the shed was our bottle neck. Halter took that constraint away. We can now milk more cows more easily and suddenly shed size isn't an issue anymore," explained Steve. The stocking rate was lifted from 2.5 to 2.6 cows/ha, with a further increase planned in the 2025 season.

“Halter has made us more conscious about what we are doing, when and why. Decisions now come from a more high-quality set of data. If a decision is wrong, it will be highlighted immediately.” This also applies to transition and animal health management.

During the busy time of the season, including calving and mating, the changes that Halter has enabled are particularly evident. Despite a reduction in FTE by 0.25, running several mobs on farm, crop feeding, pre-mating and mating management have become significantly easier for the team. At mating time, the improved insights allow for more targeted intervention for anoestrus cows increasing the chance of stock to get pregnant in the first six weeks of mating. The improvement in performance have given the team confidence in moving to all AB without tail paint or scratchies. Regular monitoring of predicted reproductive performance gives confidence that good results can be repeated and improved further.

The Numbers

The farm’s performance has improved across multiple areas, including pasture management, production, reproduction, people, and environmental outcomes. It is important to note that significant gains in milk solids per cow and per grazed hectare were already occurring prior to the implementation of Halter. In 2018/19, production per cow was 338 kgMS, dropping to 312 kgMS in 2019/20. This then increased to 370 kgMS in 2020/21 and 407 kgMS in 2021/22. With the introduction of Halter, further gains were realised, reaching 423 kgMS per cow in 2022/23 and 462 kgMS in 2023/24. While performance was clearly trending upward before Halter’s adoption, its implementation contributed to accelerated improvements.

The amount of pasture harvested has increased from 10.8 to 12.6t DM/ha, a 16.7% increase. The increase in stocking rate was supported by an intensification in feeding system from system 2 to 3. Between the increased offering of pasture and supplements, the total feed intake per cow increased by 19.6% to 6.1t DM/cow/year. The improved feed quality improved the feed conversion efficiency from 14.4 to 13.2 kg DM/kg MS.

Milk production per cow lifted by 105kg MS. The 6 week in-calf rate lifted by 7%, and the not-in-calf rate reduced by 2.7%. The change in mating strategy has allowed the business to save \$9,000 in cost.

Despite the significant improvements in performance, Steve Hines was able to step away from the day-to-day management more, while retaining full visibility over the operation. The general day to day workload for the team was reduced by 1 hour per person per day, while during calving, the workload has reduced by 3 hours per person. Staff start later, work fewer hours and are more involved in decision making.

The environmental wins are significant too. Nitrogen fertiliser use has reduced by 23.8%. The use of petrol and motorbike associated maintenance has reduced by 40%.

Financial

Financial results are modelled using a standardised approach across all case studies. The overall change in EBIT from the 2018-19 until 2021/22 seasons (pre-halter) and the 2023/24 season (with halter) showed an increase in Earnings Before Interest and Tax (EBIT) of 37%. Pre-Halter EBIT was \$2592 per hectare while post implementation of Halter saw an increase to \$3558 per hectare.

Conclusion

The adoption of Halter has been a journey from constraints to confidence for Steve and Donna Hines. Halter allows the team to achieve better performance and outcomes with the same infrastructure, the same large paddocks and less staff.

The cow shed is no longer the bottleneck of the operation and work hours are no longer maxed out. Every part of the operation - pastures, stock, people and environment – has improved through data driven decision making and increased confidence in decisions. “The technology was designed in New Zealand, for New Zealand farms. It fits our system and our business.”

Appendix: Farmax Modelling Summaries

DM eaten per grazed hectares

FARMAX Compare Physical Summary <i>Jun 18 - May 19</i>								
		Doneve - Otamatahae 18/ 19 Actual Performance 1	Doneve - Otamatahae 19/ 20 Actual Performance 1	Doneve - Otamatahae 20/ 21 Actual Performance 1	Doneve - Otamatahae 21/ 22 Actual Performance 1	Doneve - Otamatahae 22/ 23 Actual Performance 1	Hines Agri - Otamatahae 23/24 Actual Performance 1	
Farm	Effective Area	274	274	274	274	274	274	ha
	Stocking Rate	2.5	2.5	2.5	2.5	2.6	2.6	cows/ha
	Comparative Stocking Rate	91.4	94.9	91.6	83.6	78.1	78.5	kg Lwt/t DM eaten
	Potential Pasture Growth	12.1	12.2	13.4	12.9	15.0	14.8	t DM/ha
	Nitrogen Use per graze ha	271	206	111	149	35	134	kg N/ha
	Feed Conversion Efficiency (eaten)	14.4	15.4	13.8	13.4	13.1	13.1	kg DM eaten/kg MS
Herd	Cow Numbers (1st July)	708	712	737	732	741	795	cows
	Peak Cows Milked	688	687	696	690	699	709	cows
	Days in Milk	227	226	264	274	274	284	days
	Avg. BCS at calving	5.0	4.4	4.8	4.6	5.0	5.2	BCS
	Liveweight per graze ha	1,213	1,166	1,335	1,252	1,205	1,277	kg/ha
Production (to Factory)	Milk Solids total	232,507	214,275	257,642	280,580	295,719	327,317	kg
	Milk Solids per graze ha	922	797	1,058	1,122	1,173	1,239	kg/ha
	Milk Solids per cow	338	312	370	407	423	462	kg/cow
	Peak Milk Solids production	2.03	2.03	2.13	1.95	1.88	2.13	kg/cow/day
	Milk Solids as % of live weight	76.0	68.3	79.3	89.6	97.4	97.0	%
Feeding	Pasture Eaten per cow *	3.8	3.9	3.8	3.8	3.9	4.6	t DM/cow
	Supplements Eaten per cow *	1.0	0.9	1.1	1.6	1.6	1.1	t DM/cow
	Off-farm Grazing Eaten per cow *	0.1		0.2		0.1	0.4	t DM/cow
	Total Feed Eaten per cow *	4.9	4.8	5.1	5.4	5.6	6.1	t DM/cow
	Pasture Eaten per graze ha	10.7	10.6	11.2	10.8	11.0	12.6	t DM/ha
	Supplements Eaten per graze ha	3.3	3.2	3.5	4.8	4.7	3.3	t DM/ha
	Off-farm Grazing Eaten per graze ha	1.3	1.1	0.6	1.9	2.3	2.7	t DM/ha
	Total Feed Eaten per graze ha	15.3	14.9	15.3	17.5	18.1	18.6	t DM/ha
	Supplements and Grazing / Feed Eaten *	22.1	19.4	24.7	29.3	29.5	23.6	%
	Bought Feed / Feed Eaten *	5.6	13.3	9.6	21.4	21.0	16.6	%

(*) feed eaten by females > 20 months old / peak cows milked
Farmax Dairy 8.3.4.17

DM offered per grazed hectares

FARMAX Compare Physical Summary <i>Jun 18 - May 19</i>								
		Doneve - Otamatahae 18/ 19 Actual Performance 1	Doneve - Otamatahae 19/ 20 Actual Performance 1	Doneve - Otamatahae 20/ 21 Actual Performance 1	Doneve - Otamatahae 21/ 22 Actual Performance 1	Doneve - Otamatahae 22/ 23 Actual Performance 1	Hines Agri - Otamatahae 23/24 Actual Performance 1	
Farm	Effective Area	274	274	274	274	274	274	ha
	Stocking Rate	2.5	2.5	2.5	2.5	2.6	2.6	cows/ha
	Comparative Stocking Rate	77.6	80.2	76.3	70.1	65.4	65.2	kg Lwt/t DM offered
	Potential Pasture Growth	12.1	12.2	13.4	12.9	15.0	14.8	t DM/ha
	Nitrogen Use per graze ha	271	206	111	149	35	134	kg N/ha
	Feed Conversion Efficiency (offered)	16.9	18.2	16.5	15.9	15.7	15.8	kg DM offered/kg MS
Herd	Cow Numbers (1st July)	708	712	737	732	741	795	cows
	Peak Cows Milked	688	687	696	690	699	709	cows
	Days in Milk	227	226	264	274	274	284	days
	Avg. BCS at calving	5.0	4.4	4.8	4.6	5.0	5.2	BCS
	Liveweight per graze ha	1,213	1,166	1,335	1,252	1,205	1,277	kg/ha
Production (to Factory)	Milk Solids total	232,507	214,275	257,642	280,580	295,719	327,317	kg
	Milk Solids per graze ha	922	797	1,058	1,122	1,173	1,239	kg/ha
	Milk Solids per cow	338	312	370	407	423	462	kg/cow
	Peak Milk Solids production	2.03	2.03	2.13	1.95	1.88	2.13	kg/cow/day
	Milk Solids as % of live weight	76.0	68.3	79.3	89.6	97.4	97.0	%
Feeding	Pasture Offered per cow *	4.5	4.6	4.6	4.6	4.7	5.5	t DM/cow
	Supplements Offered per cow *	1.1	1.1	1.3	1.9	1.9	1.3	t DM/cow
	Off-farm Grazing Offered per cow *	0.1		0.2		0.1	0.5	t DM/cow
	Total Feed Offered per cow *	5.7	5.7	6.1	6.5	6.6	7.3	t DM/cow
	Pasture Offered per graze ha	12.6	12.5	13.3	12.8	13.1	15.0	t DM/ha
	Supplements Offered per graze ha	3.8	3.7	4.2	5.7	5.7	4.0	t DM/ha
	Off-farm Grazing Offered per graze ha	1.6	1.3	0.8	2.3	2.8	3.3	t DM/ha
	Total Feed Offered per graze ha	17.9	17.5	18.3	20.8	21.6	22.3	t DM/ha
	Supplements and Grazing / Feed Offered *	22.0	19.2	25.2	29.6	30.1	24.6	%
	Bought Feed / Feed Offered *	5.6	13.1	10.4	21.9	21.5	17.8	%

(*) feed offered to females > 20 months old / peak cows milked
Farmax Dairy 8.3.4.17

DM eaten per total hectares

FARMAX		Compare Physical Summary						
		Jun 18 - May 19						
		Doneve - Otamatahae 18/ 19 Actual Performance 1	Doneve - Otamatahae 19/ 20 Actual Performance 1	Doneve - Otamatahae 20/ 21 Actual Performance 1	Doneve - Otamatahae 21/ 22 Actual Performance 1	Doneve - Otamatahae 22/ 23 Actual Performance 1	Hines Agri - Otamatahae 23/24 Actual Performance 1	
Farm	Effective Area	274	274	274	274	274	274	ha
	Stocking Rate	2.5	2.5	2.5	2.5	2.6	2.6	cows/ha
	Comparative Stocking Rate	91.4	94.9	91.6	83.6	78.1	78.5	kg Lwt/t DM eaten
	Potential Pasture Growth	12.1	12.2	13.4	12.9	15.0	14.8	t DM/ha
	Nitrogen Use per total ha	250	203	99	136	32	129	kg N/ha
	Feed Conversion Efficiency (eaten)	14.4	15.4	13.8	13.4	13.1	13.1	kg DM eaten/kg MS
Herd	Cow Numbers (1st July)	708	712	737	732	741	795	cows
	Peak Cows Milked	688	687	696	690	699	709	cows
	Days in Milk	227	226	264	274	274	284	days
	Avg. BCS at calving	5.0	4.4	4.8	4.6	5.0	5.2	BCS
	Liveweight per total ha	1,119	1,146	1,188	1,145	1,111	1,233	kg/ha
Production (to Factory)	Milk Solids total	232,507	214,275	257,642	280,580	295,719	327,317	kg
	Milk Solids per total ha	850	783	942	1,026	1,081	1,197	kg/ha
	Milk Solids per cow	338	312	370	407	423	462	kg/cow
	Peak Milk Solids production	2.03	2.03	2.13	1.95	1.88	2.13	kg/cow/day
	Milk Solids as % of live weight	76.0	68.3	79.3	89.6	97.4	97.0	%
Feeding	Pasture Eaten per cow *	3.8	3.9	3.8	3.8	3.9	4.6	t DM/cow
	Supplements Eaten per cow *	1.0	0.9	1.1	1.6	1.6	1.1	t DM/cow
	Off-farm Grazing Eaten per cow *	0.1		0.2		0.1	0.4	t DM/cow
	Total Feed Eaten per cow *	4.9	4.8	5.1	5.4	5.6	6.1	t DM/cow
	Pasture Eaten per total ha	9.8	10.4	9.9	9.8	10.2	12.2	t DM/ha
	Supplements Eaten per total ha	3.0	3.2	3.1	4.4	4.4	3.1	t DM/ha
	Off-farm Grazing Eaten per total ha	1.2	1.1	0.5	1.8	2.2	2.6	t DM/ha
	Total Feed Eaten per total ha	14.1	14.6	13.6	16.0	16.7	18.0	t DM/ha
	Supplements and Grazing / Feed Eaten *	22.1	19.4	24.7	29.3	29.5	23.6	%
	Bought Feed / Feed Eaten *	5.6	13.3	9.6	21.4	21.0	16.6	%

(*) feed eaten by females > 20 months old / peak cows milked
 Farmax Dairy 8.3.4.17

Profit and Loss

FARMAX			Compare Forecast Profit and Loss					
			Jun 18 - May 19					
			Doneve - Otamatahae 18/ 19 Actual Performance 1	Doneve - Otamatahae 19/ 20 Actual Performance 1	Doneve - Otamatahae 20/ 21 Actual Performance 1	Doneve - Otamatahae 21/ 22 Actual Performance 1	Doneve - Otamatahae 22/ 23 Actual Performance 1	Hines Agri – 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								