Step Changes in a Farm System – Practical Steps to Reduce Footprint

Garry and Marie-Jose Reymer, Cambridge

Decisions that are made on farm often have wider impacts than we originally anticipated. A decision is made to achieve a certain outcome, but what are the ‘unplanned’ consequences of that decision?

Garry and Marie-Jose Reymer made a conscious decision five years ago to de-intensify their system. In this session we hear why they made this decision and how they went about it. We also examine the effect this has had on profit, water quality and greenhouse gases (GHG) and get Garry’s reaction to those findings.

Garry can you give us a bit of background to your farm and farming business?

Marie-Jose and I purchased our home farm in 1992, It was 76 ha milking 230 cows on Taupo complex loam soils just out of Cambridge using maize silage for summer dry and autumn feed as our main supplement.

We farmed this ourselves for too many years and then started employing some help in early 2000s after we added to the home farm and increased to 300 cows.

We started transitioning to feeding chip maize as we saw an opportunity to improve production by using better grain along with some protein products. This progressed to storing and milling wheat on farm to try to reduce feed cost. In 2007 drought we introduced PKE to our system.

How has your farm system evolved over time?

We moved from a maize silage system when we took the opportunity to install an in shed feed system when the farm dairy was upgraded and automated. We felt this would allow us to intensify without adding too much work. Initially this seemed to work well but, being an early adopter, the advantages were short lived.

The South Island rapidly converted to dairy and soaked up the cheap wheat and as the Waikato intensified the cheap grazing vanished. Then as the gear got older the R&M increased so all my early advantages were eroded.

The option of using PKE and the fact we are getting older and wanted more leisure time, meant that we had a lot of things come together. We know that a well-run high input system requires a very hands-on approach. Our journey has not ended yet. It takes as long to unwind as it does to wind up, but we are progressing to a ‘PKE for deficit and hay for winter’ type system with a kiwi cross cow.

How did you implement the recent changes you made?

We started by dropping the winter grazing and buying some hay. Then we diluted grain with PKE in the in-shed feed system before progressing to feeding outside in PKE trollies. We had two reasons for this,
firstly we could get a higher supplement intake than what we could in shed and secondly, the in-shed system was getting to the end of its life.

Change is and maybe should be a constant and I am certain we have not got things right yet but, just like most don’t set out to go to a full blown system 5 with pads, bunkers, mixer wagon and telehandler, maybe it’s just too big a leap to go to 2.6 cows/ha with zero bought in feed and just an old 135 to feed out a few bales.

**DairyNZ’s analysis of the Reymer’s changes**

DairyBase and OverseerFM have been used to see how these changes have impacted Garry and Marie-Jose’s profitability, Purchased N surplus, and GHG numbers.

**Profit** – was maintained. This farm operated at 30% above the regional BM prior to the change and this was maintained after the change in system.

**Purchased N Surplus and N Leached** both reduced in the 2015-2017 years by an average of 20%. In 2018 (2017-18) the Purchased N surplus only dropped by 12 kg N/ha from 2014 due to increased fertiliser N applications. This combined with all stock wintered on in 2018 compared to only 70% in 2014 and the timing of N applications resulted in only a 2 kgN/ha decrease in N leached as predicted by Overseer.

**Green House Gases (GHG)** As expected methane produced has tracked closely with dry matter intake (DMI). Methane in 2018 reduced by -4.2% on 2014 levels. However, methane in 2018 increased by +3.5% on 2017 levels. To reduce this further will require reducing total feed intake by wintering fewer cows on, reducing the replacement rate from 25% or doing less milk production.
Garry, what is your reaction to these results?

I feel that we have made more cash over the last few years then we did when we were feeding more supplements, so I’d like to dig into the financial results a bit more and see where the costs have been saved.

I know the change has been better for me and my team. There is less stress and I can get to the beach more! I don’t have to worry about the timing of truck arrivals, making sure we order the right amount of feed, breakdowns in the system etc. It’s just a lot easier.

I never made the change to improve environmental performance so it’s good to see the Purchased N surplus dropping and the GHG’s drop. It makes the future less daunting.

I’ll use your analysis to investigate what else I can do change the amount of nitrogen that’s leaving our system - to refine our on-farm management. I feel quite encouraged by this as we’ve already achieved quite a bit.

Summary

Garry and Marie-Jose’s story shows how their change in farm system has had a significant impact on their environmental footprint and profit. In their case, reducing feed inputs has resulted in maintaining their farm profitability level in the top 25% of Waikato farms, reducing the Purchased N Surplus by 11% and reducing methane by 4.3% from 2014 levels. The change in farm system shows that profit can be maintained, and the farm system is easier for Garry and Marie-Jose to run. However, their next challenge is to do the same milk solids per hectare from less N fertiliser, increasing profit and reducing N leached and reducing total DMI to reduce methane from 2017 levels.

Decisions that are made on farm now need to include the impact on water quality, greenhouse gas, and profit. It’s important to know your numbers, where you are heading and start thinking of what you may need to do in the future. As in Garry and Marie-Jose’s case you may be further down the path than you think.

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