



Research to develop the application of lean management techniques for dairy farming

Executive summary of Lean Management
Pilot 1 and 2

Report prepared for DairyCo

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Pilot 1

A three year DairyCo funded pilot project on the implementation of lean management principles and techniques on dairy farms.

The project was conducted by Kay Carson of Streamline Farm Management (SFM) for the Reaseheath Agricultural Development Academy (RADA). It involved six farms in Cheshire whose managers received training on lean methods during 2010 and 2011. The project then tracked management developments on these farms for 30 months seeking to answer two questions:

1. Is it possible to apply the principles of lean management to dairy farms?
2. If they are applied, do they result in increased efficiencies and therefore profits?

The answer to the first question is a definite yes. The six cases studies demonstrated six ways in which different managers engaged with the principles of lean management at different levels and in all cases, except one, they benefited. The exception was a manager who did not remain in post for long enough to go beyond the initial stages of lean implementation. In all other cases, managers expressly identified improved operational decision making as one of the benefits of lean management. Better decision making resulted in less mistakes being made on farm, as planning and performance monitoring prevented the creation of waste and the maximisation of value through the best use of inputs.

Dairy farming lends itself to process management techniques and it was easy for all participating managers to understand the importance of appropriate key performance indicator (KPI) setting and monitoring in order to deliver operational goals. Finding the root cause of underperformance and dealing with it at source was also welcomed by the managers.

The barriers to the adoption of lean management developed around data collection, but more importantly, data review. The latter was a skill that none of the participating farmers had developed and in which they all grew. They all welcomed the chance to learn in a new way. In fairness, however, there was a high degree of self-selection, in that only individuals who were motivated to learn would have accepted to take part in the pilot in the first place.

Four of the farms in the Pilot 1 are contract-managed by the same company, Grasslands. The decision to implement lean management on these farms was made by Grasslands' senior management. At face value one might think that a more commercial management system may find it easier to succeed at implementing such a big change, however, this was not the case. Embedding lean management on a single farm or a group of farms is primarily dependent on staff culture and the willingness of individuals to embrace change. This is as difficult for an individual as it is for a group. The two farms businesses in Pilot 1 which were not part of Grasslands, demonstrate that the process of change was no more difficult or

easier for them. Once managers engaged with the cultural change required of them (a willingness to be accountable, not fearing mistakes but seeing them as opportunities for improvement, confidence in management's support or the support offered by the consultant) they became active learners and doers keen to see results.

On the other hand, those managers who were not entirely convinced of the need for change, did not change their behaviour. This is where farm leadership is key. When leaders, whether owners, salaried managers or herdsman, make the case for change, commit to it and sustain it through actions, not words, the farm team is more likely to follow. Case studies from Pilot 1 show clearly how leadership is key to sustain change and that it is lack of leadership that leads to early gains and quick backtracking. This pattern is common across industries implementing lean management – this pilot shows that dairy farming is no exception to the rule.

The answer to the second question: *If lean principles and techniques are applied do they lead to increased efficiencies and increased profits*, is also yes, but with caveats. The experiences at three of the case study farm businesses provide very clear evidence of increased efficiencies that led to higher profits. The way these early efficiencies were achieved was through sound planning, fastidious and frequent analysis of performance data, followed by action, which ensured that physical KPIs were met across production processes throughout the year.

It sounds like common sense, but the reality on farm is that shocks to the production system in terms of bad weather, cashflow demands, animal health events or lack of labour, can throw managers off course, and it is only if lean routines of process control are maintained that profitability is guaranteed. For gains to be replicated beyond the first year, management focus needs to be maintained. The existence of data management systems or even frequent performance reviews is not enough to sustain continuous improvements. Farm managers need to maintain a high level of curiosity in the system to continuously challenge themselves to anticipate events on farm and actively want to improve past performance.

Lean management is not a silver bullet that delivers profits – it is a framework for effective decision making, planning and risk management to deliver well defined goals.

The caveat is that lean management is an on-going process and even after three years, there is more work to be done on the case study farms. Furthermore, there will always be scope to make mistakes, which will potentially undo the good work that lean has achieved, and for expensive external shocks, such as TB, whose impact can be mitigated but not avoided altogether. However, just because improvements will be incremental, it does not mean they are not worth pursuing.

The farms which made the least progress in terms of lean management, still made some progress in improved net margins per litre. In all cases, improved farm performance was due to management improvements in traditional terms. All of them intend to continue pursuing lean improvements.

To conclude, based on the evidence from the six case studies in Pilot 1, the following are the benefits on offer to farm managers who are willing to enter a process of change to a management culture of continuous improvement, following lean principles:

1. Farm management improvement
 - a. Personal development as continuous professional management learning becomes as important as technical skill
 - b. Management skills beyond 'telling workers what to do' and ensuring that they are legally compliant in terms of conditions of employment and health and safety. This is management that engages staff in the wider strategy of the farm and looks out for the staff's professional development, thereby releasing high levels of labour productivity. It also builds the managers confidence and ability to deal with external advisers, from technical to financial, as they are now in control of the information of the farm's actual performance.
2. Management systems for operational performance.

This is the area lean management is known for. The innovation for dairy farming is that in a lean context the entire dairy enterprise is managed as a system and not as a loosely connected string of physical activities. The relationship between different processes is well understood and therefore amenable to control. The practical steps that are taken for each process can be summarised as follows:

 - a. Target setting for each process
 - b. KPI measurements for each process
 - c. Frequent performance reviews
 - d. Decision making based on the systematic analysis of the evidence collected and the underlying production plan and budget.

The case studies illustrate how these techniques were central to high performance on every one of the farms.

3. Business management.

It is not possible to lean manage without clarity in respect of company strategy, annual goals and objectives and monthly, weekly and daily targets. Managers therefore need to learn and master the following disciplines:

 - a. Planning: translating goals into operational targets
 - b. Production plans and budget setting
 - c. Reviews against plans and forecasting
 - d. Delivery of profitable performance.

As with any learning process, cultural change does happen quickly but the benefits are significant. Lean management is not for every dairy farmer, but it holds great potential for some. It is a sound management model that can deliver consistent profits. It also ensures the continuous professional development of farm teams, which will equip them to adjust to changing environmental and economic circumstances. This is a management model to deliver sustainable dairy farming.

Pilot 2

A DairyCo funded research project, Pilot 2, was conducted by Reaseheath College with Kay Carson of Streamline Farm Management (SFM). It involved six dairy advisers/consultants from across England and Scotland, with 6 associated farm business case studies, run over 2 years 2012-2014, seeking to answer three questions:

1. Whether dairy consultants, given appropriate training, are able to guide their clients through the implementation of lean management principles and techniques on dairy farms
2. Whether the dairy consultant's intervention results in measurable efficiency gains in terms of increased unit net margins relative to the previous year's performance, and also, at a lower level, in terms of improved technical performance
3. If efficiency gains are found in the first year or credibly planned for the second year, to understand whether the improvement was achieved through the consultant's direct management input to the dairy enterprise or whether the client improved his/her own management performance by adopting the lean principles and techniques with the consultant's coaching.

The answer to the first question is yes. All advisers were able to complete the ILM (Institute for Leadership and Management) Level 5 Certificate in Service Improvement course successfully and carry out improvements, sometimes limited, sometimes extensive, on their case study farms. All the advisers were able to choose from the lean toolkit the tools that would suit their clients, the appropriate scale of the project to implement and the manner in which to introduce a new management concept to them.

The answer to the second question, whether measurable efficiency gains were achieved, is yes, in three out of the six case studies. From the outset, these three projects improved management systems to support and sustain the planned process improvements. A fourth study was only able to plan the improvement that will be implemented in the second year, as it needed to gather production data on which to base the improvement plans during the course of the project.

The final question addresses the degree to which farm management was strengthened through the lean programme. In all cases, the advisers trained the farm management in lean techniques and collection and analysis of operational performance data; in some cases, they provided coaching on staff management, project management and sometimes technical expertise.

In all cases, the advisers had to supplement data management systems on farm with purpose built spreadsheets to make the data immediately accessible on a daily basis and focused on process performance. On none of the four case studies which achieved or are expected to achieve efficiency gains through the implementation of lean improvements, did the advisers substitute for the farm manager's or his staff's responsibilities. In all cases, the farm staff, to differing degrees, took ownership of the management changes that were being

piloted. It is this staff engagement which allows us to expect that the improvements have a good chance of being sustained and hopefully built on.

Two of the case studies show that even with the external support of a change agent (trained consultant/advisor), unless the farm's management team is willing to lead and model meaningful changes to the running of the farm on a day to day and to put in place effective operational and management systems, operational improvements are, at best, temporary.

Based on the experience of all the advisers' involved in DairyCo's dairy lean project, the research team arrived at the following conclusions:

1. Lean management thinking, its tools and techniques are applicable to dairy farming. Some of the tools the ILM course introduced to the participating dairy advisers were new to them. In the advisers' feedback, all of them identified value stream and process mapping of dairy processes, the annual asset review (which aims to maintain the productive capacity of the asset base from one production period to another) and the daily collection of data, as tools that they would immediately use with all their clients, whether or not under a lean banner. Other elements of good management also included in the lean tool kit, such as daily labour planning, good communications among the staff team, clarity of expectations in respect of protocols (or standardised procedures), setting and tracking targets and enterprise objectives are standard management good practice. What is new in this model is the expectation that the entire dairy system is to be managed in this manner to achieve maximum value from the assets engaged in dairy production and the owners own management. In four of the six case studies this is a real possibility, but, given the length of the dairy production cycle, a problem-free full transition requires at least two years with full adviser coaching support. The demonstrable gains that are achievable, however, can be shown to justify the investment in building management capacity on farms.
2. Lean management is not for every farmer. The open culture required to address underperformance in a positive way, seeing it as an opportunity for improvement, has to be genuine. Management in this context releases the constraints on labour productivity associated with a lack of understanding of operational objectives, lack of training, inadequate resources to achieve the desired aims and low morale. Unfortunately, the management style on some farms can be directive and there may not be a pressing reason for changing. In these circumstance, when staff are employed they can be seen as a cost to be kept to a minimum and short term financial pressures can result in underinvestment in them. A lean culture sees labour as a key resource that has to be nurtured and sustained to maintain its productivity. Once a member of staff is fully trained technically, is skilled in adhering to protocols and delivers operational targets, they are an asset in the business. Only farmers who are willing to lead such a change in culture are likely to reap the full benefits that lean thinking has to offer.
3. Pilot 2 shows that the adviser client relationship is a suitable vehicle to deliver informal training and coaching in lean management to dairy farmers. The adviser can deliver a two year implementation programme through which the farm's own



management is strengthened or alternatively, agree on more limited improvements following lean principles which can be extended across the dairy system.



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