

Section 0

Lean Management including Standard Operating Procedures

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Introduction

Average herd size increased from 25 cows per farm in 1990 to 75 cows in 2017, and is anticipated to increase further by 2020 (see figure 1). Workload has increased almost three-fold during the same period (25 to 75 hours per week). As a result farmers can experience exhaustion due to the sheer volume of work especially in spring. 'Lean' principles and Standard Operating Procedures can improve work practices, increasing overall labour efficiency.

- ① What is Lean Management?
- ② What are the Benefits of Lean?
- ③ What is Visual Management?
- ④ What are Standard Operating Procedures?

Lean Management and Standard Operating Procedures on Dairy Farms

1 What is Lean Management?

Lean is an approach to continuous improvement commonly used in manufacturing. The aim is to combine the flexibility and quality of craftsmanship with the cost efficiency of mass production. Lean management works to improve working conditions and job satisfaction by improving the working environment and work methods.

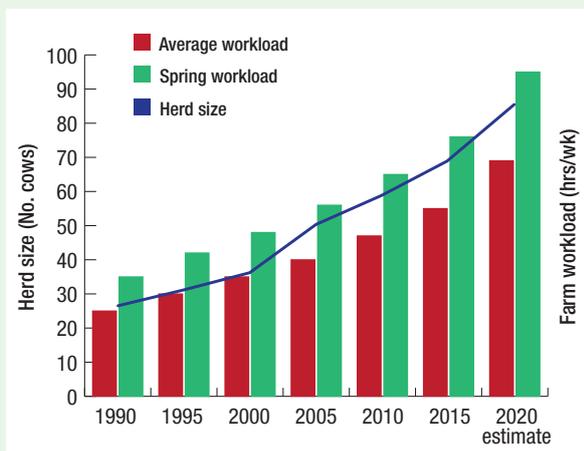
It is about reducing waste by reorganising processes to make them more efficient. Lean started in Toyota car manufacturing and has been adapted to many industries. Recently people in Ireland have started to look at how Lean could be applied to benefit farmers.

2 What are the Benefits of Lean?

- Reduce costs
- Increased productivity
- Improved safety
- More available time
- Reduced frustration
- Identifying and fixing problems quickly

A Lean pilot programme operated by Dairygold demonstrated that improvements could be made in safety and physical labour which positively impacted on the farmers' quality of life and wellbeing. Implementing Lean principles on farm can also reduce costs and increase net margin through higher levels of operational performance.

Figure 1: Trends in herd size and dairy herd workload on Irish dairy farms (1990 – 2015; 2020 estimated)



Key Point



Wastes

Wastes are elements of activity that add time, effort or cost but which do not add value. In a dairy context that is any activity that does not add value to delivering as much high quality milk as possible, without compromising animal welfare, the environment or people.

Removing waste is one of the best ways to improve profit as it lowers the cost of production. To remove waste it is important to understand what waste is and where it exists.

Table 1: The eight forms of waste and examples of each

Waste	Examples
Transport	<ul style="list-style-type: none"> • Tools not located near the point of use
Inventory	<ul style="list-style-type: none"> • Having excessive supplies going out of date • Bulk buying calf meal and then not using it all
Motion	<ul style="list-style-type: none"> • Looking for tools to fix a water trough • Putting up an electric fence without having enough pig-tail posts and needing to return to the shed before finishing the job
Waiting	<ul style="list-style-type: none"> • Waiting for cows to get to the milking parlour • Waiting for bulk tank to wash before milking
Excessive/inadequate processes	<ul style="list-style-type: none"> • Using twice as much water, and taking twice as much time, to clean the yard as others • Pre-mowing or topping pastures
Overproduction	<ul style="list-style-type: none"> • Activities that exceed needs or demands (rearing too many calves) • Overfeeding dry cows resulting in them being too fat
Defects	<ul style="list-style-type: none"> • Milk quality not meeting co-op standards • Holes in silage bales not taped resulting in silage spoilage
Skills	<ul style="list-style-type: none"> • Under-utilising people's talents • Not giving people adequate responsibility

How to



Identify 'wastes' on the farm?

- Involve everyone operating on the farm (family, employees) and identify an activity to focus on e.g. milking
- Use the eight wastes table to help identify any wastes e.g. running out of drugs to treat a sick cow, getting out of the pit to get the spray can to mark a cow, etc.
- Don't try and solve anything or justify existing practices at this stage, just capture potential areas for improvement
- Work as a team and brainstorm potential solutions to the wastes identified. Prioritise the solutions. How easy is it to implement? What level of improvement will result?
- Write down what the required actions are and implement

What is Visual Management?

3

The goal of visual management is to identify at a glance how the farm is performing. Sharing farm performance with employees is an excellent motivator for everyone on the farm. Visualisation such as using white boards can be a useful way to communicate with others working on the farm. Examples of information that could be included:

- Contact numbers (e.g. vet, doctor, co-op milk advisor etc.)
- Current production data (milk fat & protein content, collection volumes, SCC)
- Farm map with paddocks numbered
- Grazing plan for the week ahead
- A to do list

5S: 5S is a visual management tool promoting improved safety and organisation. An organised workplace can reduce time spent looking for tools etc. and allows more time to focus on more important tasks. It is about having 'a place for everything and everything in its place'. 5S is a 5 step process to create a more efficient workplace. For example, this process could be done during the dry period to ensure that the calf shed and calving facilities are set up with all the necessary equipment in the correct place before calving.



Having all the necessary equipment potentially needed for milking in pit means that no time is lost leaving the pit and it also means that everyone can easily find the required item.

Focus on one area e.g. a workshop, milking parlour, calf shed etc. and take photos

1. Get rid of anything that is not required including anything that is broken or not used. Have you used it in the last 12months? If not throw it out. Only keep items that you use frequently and need.
2. Arrange the remaining items so that they are easy to find, select, use and return to their proper place.
3. Clean the area and return it to its best condition
4. Take 'what good looks like' photos and place in the area
5. Ensure the area stays tidy by regularly checking and taking corrective actions if necessary

4 What are Standard Operating Procedures?

A standard operating procedure or SOP is a document consisting of step by step instructions on how to complete a particular job or procedure on the dairy farm. SOPs can be adopted for tasks such as Milking Routine, Washing the milking Machine, Calf Feeding, Treating a cow for Mastitis and many more tasks that farmers perform daily. They can be equally relevant on farms with other enterprises too.

Lean Management and Standard Operating Procedures on Dairy Farms

Key Point



A well written SOP will;

- Provide direction
- Improve communication
- Reduce training time
- Improve consistency
- Allow somebody to help out in the case of an emergency
- Support a more profitable business

SOPs are an excellent tool for farmers and their employees to work towards common goals. They also create a sense of teamwork.

SOPs used in combination with planned training and regular performance feedback lead to an effective and motivated workforce.

How to



Develop a SOP

This should be an inclusive process. It should consider the input of everyone involved in the procedure. Dairy farmers / Managers that consider the input from their operatives (which includes workers and family members) will increase 'buy-in' and produce a better SOP. People will support what they help create.

There are seven steps to producing excellent SOPs

1. Planning
2. First Draft
3. Internal Review
4. External Review
5. Testing
6. Post
7. Train

1. Planning

The first step is to link the SOP with the business goal or goals that it will help achieve. The SOP can then be shaped from the beginning with steps that lead to accomplish this goal. Goals do not work without measurements and feedback on performance. For example an SOP on milking routine should tie in measurements like somatic cell count (SCC), total bacterial count (TBC) and thermophilic bacteria levels in milk.

2. First Draft

The next step is to make a detailed list of the steps in the order that they are done. Don't try to be perfect with the first draft because it is very likely that you will need to make changes. Writing a first draft provides a starting point for the review and discussion that will take place.

3. Internal Review

Provide each employee who performs the procedure with a copy of the draft SOP. Ask them to review and suggest changes that are easier to understand, more accurate or will improve performance. Assure employees that their input is important and will be considered. Operatives will feel ownership and commitment to an SOP if they believe that the owner or manager included their ideas during development. Many employees, or other family members, will have good ideas.

4. External Review

Dairy farmers/Managers should seek advice and feedback from people such as their advisor, and vet when creating an SOP. Give them a draft of the SOP and ask them to suggest any changes that will make it clearer and more effective.

5. Testing

For procedures to be effective, they must perform in the workplace. There is only one way to be absolutely certain that a procedure is well written and performs as expected. Have a person (preferably someone unfamiliar with the task) test the SOP by performing each step exactly as it is described. Any step that causes confusion for the test operative should be revised.

6. Post

Make a final draft of the SOP and display it in the appropriate location. A master SOP file should be kept in a central location where operatives can review all SOPs when necessary. The workplace SOP should be laminated and printed in large text so that workers can review while completing their work. It is also essential to keep SOPs up to date.

7. Train

The last step in the SOP writing process is to train the operatives to follow the procedure exactly. Otherwise workers will interpret the meaning of procedures in different ways leading to inconsistency in work routine and performance.

When training operatives, share the reasons why procedures must be performed correctly – not just what to do or how to do it. Operatives are much more likely to follow procedures exactly when they understand why they are important.

SOPs are powerful tools for bringing dairy farmers, managers and operatives together to focus on improving dairy production tasks. When everyone gets involved, goals are set, monitoring is built in and feedback is provided. This will enable the business to become more successful and also encourage operatives to perform at a higher level.

Calf rearing procedure

1. Heat water to 37oC
2. Weigh out milk replacer (3jugs feeds 5 calves)
3. Pour warmed water into the bucket up to the black mark
4. Add weighed out milk replacer to the water
5. Mix using a whisk
6. Once there is no lumps left add more warm water to the blue mark
7. Place feeder on the gate and add milk
8. Ensure that all calves are drinking
9. Observe calves while drinking – refer to calf health checklist
10. Remove the feeder when the milk is gone and rinse with cold water first and squeeze each of the teats to remove any milk
11. Wash the feeder using warm water and ensure all traces of milk and saliva are removed from the feeder and teats
12. Give calves concentrate (1 scoop = 2.5kg)

Summary



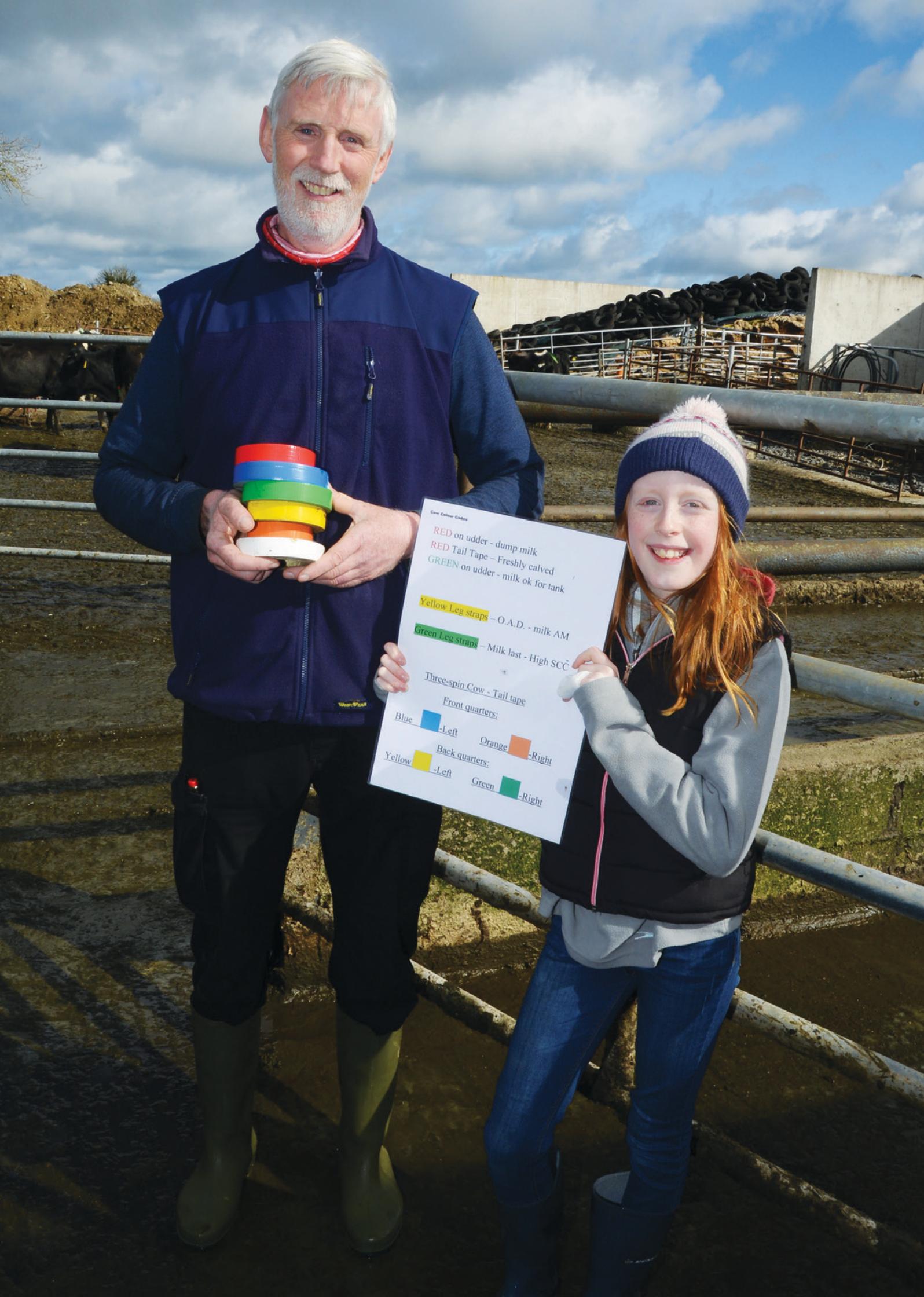
Standard Operating Procedures should be:

- Written in a clear and readable style using short sentences
- Specific to your farm
- Linked to business goals
- Written logically
- Located beside the workstation where they are needed.
- Laminated
- With photos where beneficial
- Kept to a single page
- Broken down into appropriate chunks. For example milking can be broken into three stages: Preparation for Milking, Milking Routine and Cleaning up after Milking
- Built on feedback from internal and external personnel
- Created with input from staff. Get buy in from your employees by involving them in the process from the beginning
- Measurable
- Updated and reviewed regularly.

Tips:



- SOPs enable employers to give their employees feedback on their performance
- Test the SOP – Preferably somebody unfamiliar with the task
- Train your employees to follow the steps of the SOP
- Have a master copy of all SOPs in a central location



Cow Colour Codes

RED on udder - dump milk
RED Tail Tape - Freshly calved
GREEN on udder - milk ok for tank

Yellow Leg straps - O.A.D. - milk AM

Green Leg straps - Milk last - High SCC

Three-spin Cow - Tail tape

Front quarters:

Blue

-Left

Orange

-Right

Back quarters:

Yellow

-Left

Green

-Right