

Mastitis management approach in a large multi-farm business

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Introduction

Synlait Farms Ltd is a Canterbury based farming business with 14 dairy farms, 14,000 cows and 85 staff with herds ranging in size from 570 to 2,100 cows. The Synlait Farms business has grown from one farm to its current size over the past ten years. By 2008 mastitis had been identified as a key challenge to improving productivity across the business with an estimated cost of mastitis of over \$500,000. A mastitis management strategy was developed with the goal of consistently achieving a BTSCC average of less than 150,000 cells/ml and clinical mastitis incidence of less than 15% across all farms. Continuous improvement has resulted from the implementation of this strategy with a halving in clinical mastitis incidence across all farms to 22% for 2011/2012 predicted and the BTSCC target within reach. This paper briefly describes the strategic approach in this large multi-farm business, and outlines the associated productivity improvements achieved. The intention of presenting this information is to demonstrate and encourage proactive strategic involvement in large herds and multi-farm businesses by veterinarians and other rural professionals.

Strategic plan for mastitis management

In 2008 a Mastitis Management Strategy was developed for the dairy farms of Synlait Farms Ltd It was recognised at the time that a multi-faceted and systematic approach would be required in order to ensure that continuous improvement in performance was achieved. The strategy consisted of five key aspects:

- 1. Establish current performance** – in order to identify opportunities for improvement, quantify financial significance to the business and to allow progress from base-line to be measured. Consolidated BTSCC was 311,000 cells/ml for the 2007/08 season, clinical mastitis incidence was not easily established due to the variable integrity of electronic recording but was estimated at more than 40% through the analysis of shed records, and the cost of mastitis to the business was conservatively estimated at more than \$500,000 annually.
- 2. Outline Opportunities for Improvement** – these became the key areas of focus within the strategic plan and are described later in this paper.
- 3. Set Targets** – realistic and achievable targets with stretch were set. These were a BTSCC average of less than 150,000 cells/ml and clinical mastitis incidence of less than 15% across all farms within five years.
- 4. Develop Strategic Plan** – a simple 'Plan, Do, Review' approach was adopted for each key area of focus within the strategy. Successfully implemented plans that achieve sustained improvements in clinical mastitis and BTSCC were incorporated into 'business as usual'. Plans which did not achieve desired outcomes were reviewed and adapted or discarded.
- 5. Communicate Plan** – to all members of the team. Senior management were engaged through presenting the current reality and demonstrating both the financial and non-financial benefits of adopting the strategic plan. Communication and expectation setting through on-farm training, meetings and visual displays of current performance and targets is routinely practiced to ensure all farm team members were engaged in the improvement process.

The key areas of focus developed from the opportunities for improvement within the strategic plan were:

Accurate and timely data capture - Herd testing four times per season was introduced across *all* farms, standard operating procedures were introduced to ensure *all* clinical mastitis cases were recorded and entered into the Livestock Improvement MINDA® database, BTSCC was reported daily through text alert and the Synlait Milk website, and on a five daily basis with production data electronically to the farm management team. Visual in-shed displays of mastitis data have more recently been introduced to assist with monitoring performance against targets with the assistance of Deosan Biologics Ltd (Figure 1).

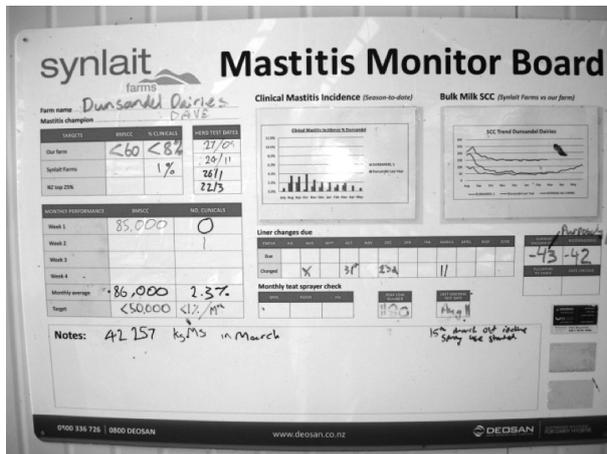


Figure 1. Mastitis Monitor Board on dairy shed wall

Milking machine maintenance and performance – On average the cow is attached to a milking machine cluster for around 75 hours per season, therefore it is critical to ensure milking machines are well maintained to avoid damage to teats. Milking machine tests are conducted on *every* farm every winter by approved machine testers, standard specifications were developed for *all* sheds for correct liner/shell matches, recommended vacuum levels and rubber-ware replacement.

Heifer mastitis – With approximately 2,500 heifers calved each season and individual farm incidence rates for heifer mastitis of between 11 and 35%, specific initiatives were required to tackle this issue. While a number of plans were evaluated and several were trialled (including maintenance of separate heifer springer mobs and daily pre-calving teat-spraying) the preferred preventative initiative was the use of internal teat sealant (Teatseal®, Pfizer Animal Health). However a significant barrier existed to achieving insertion of Teatseal® in a hygienic and controlled manner with heifers dispersed across multiple winter grazing blocks prior to calving. To overcome this, in 2010 Synlait Farms designed and commissioned a mobile teat-sealing crate with the support of Pfizer Animal Health (Figure 2). This has enabled all heifers to be teat-sealed in subsequent seasons with a resulting heifer mastitis incidence of less than 5%.



Figure 2. Synlait Farms teat-sealing crate in action

Milking management – Routine assessment of all aspects of milking management ('shed checks') were introduced across all farms under the guidance of Dr John Howie. A typical shed check objectively assesses *machine*, *cow* and *people* factors with particular reference to how interactions between the three are affecting the risk of mastitis. Targeting these checks in the spring has been a successful method for identifying problems at a high risk time of season for mastitis. Farm managers and teams are presented with subsequent recommendations and supporting training to correct any issues identified.

Staff training – Knowledge of how to minimise the risk of mastitis and the motivation of farm teams to positively impact performance can be significantly improved through well facilitated on farm training. Regular interactive training is offered in multiple formats to cover key aspects of milking management, prevention of mastitis and the routine management and treatment of clinically affected cows.

Improved culling decisions – The ability to identify and cull cows with chronic mastitis infections is an important aspect of mastitis control. With improved accuracy in electronic herd records and an improved understanding by the management team of the cost of maintaining chronically infected cows in the herd protocols were developed to ensure culling decisions could be made with confidence.

Teat spraying – Backed by a significant amount of literature, improved effectiveness of teat-spraying across all herds was identified as a key opportunity for improvement particularly given that teat condition was poor and teat end damage was significant across all herds. To improve both teat disinfection and teat condition it was critical to identify the *correct product* and ensure the *right amount* at the *right concentration* covered *all teats* after *every milking*. After evaluating a number of products on paper and several on-farm, Teat-Ex® (Deosan Biologics Ltd.) was selected for use across all sheds. With the assistance of Phill Bloomfield of Deosan Biologics an in-depth assessment was undertaken to identify the most appropriate nozzle for the automatic teat sprayers present in the majority of Synlait Farms sheds. This resulted in vastly improved teat spray coverage post milking. Lastly, a significant effort was invested in ensuring teat spray concentration was consistent through staff training and in-shed concentration charts (Figure 3). The overall impact of improved teat spraying was significantly improved teat condition as assessed at routine shed check visits with a corresponding further reduction in clinical mastitis incidence.



Figure 3. In-shed resource for ensuring appropriate teat spray concentration

Peri-calving mastitis - Peri-calving environmental mastitis is well recognised as a significant issue in New Zealand pastoral based dairy farming systems and was identified as an important area for improvement across the Synlait Farms. Backed by significant literature Dry Cow Therapy in combination with Teatseal® was evaluated over several seasons on several farms and demonstrated significant reductions in both clinical mastitis and BTSCC. This approach has now been incorporated across all farms as a key part of the mastitis management strategy to assist with mitigating the risk of peri-calving mastitis.

Development of strategic partnerships – In an industry where a multitude of choice exists for products and services, building key relationships with aligned and innovative partners can offer the opportunity for rewarding

and sustained performance improvements. While their identity was not known in all cases in the initial phases of strategic plan development, four key partners emerged to play significant roles in assisting with the Synlait Farms strategic plan for mastitis management – Deosan Biologics, Pfizer Animal Health, Livestock Improvement and Read Industrial.

Summary

Through the identification of key opportunities for improvement in the area of mastitis management Synlait Farms developed a successful mastitis management strategy which continues to provide on-going continuous improvement in both physical and financial performance across its dairy farms. With an increasing number of large herd, multi-farm dairy businesses emerging both in New Zealand and globally, such an approach offers veterinarians and rural professionals the ability to engage in a sustained and mutually beneficial manner.