

# Implementing and Managing Reproduction Programs

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## Abstract

With all the new programs and technologies, many purveyors of knowledge to dairies forget to involve the people responsible for making a program work. These programs not only need to be brought into the trenches, but they need to be incorporated into the daily routine and the proper methods demonstrated to accomplish them. This helps solidify the procedures in the minds of those implementing the program. Furthermore, there is a need for monitoring the results and helping to ensure that implementation has been effective and to provide feedback to the people instituting the program so that they are aware of the progress they are making.

There are a number of programs available to help in the implementation of new technologies. These utilize standardized management processes to identify potential problems before they occur. The desired critical control point management is accomplished through a combination of team building, employee education, proactive listening, and process analysis. The team meetings result in standard operating procedures and monitoring processes that are implemented to achieve management goals.

A systematic approach to building a reproduction program follows these seven basic principles:

1. *Potential hazards are identified in the current process.*
2. *Critical control points for the identified hazards are determined.*
3. *Critical limits are established.*
4. *Routine monitoring procedures are developed to assess the critical limits.*
5. *Corrective actions are then put into place, in case the critical limits are exceeded.*
6. *The developed SOPs are utilized for employee training.*
7. *The results are verified.*

## Introduction

When academically proven ideas are moved onto dairies, the results frequently are not as stellar as those observed in the university setting. Oftentimes the academic community is accused of not being in touch with “the real world”. However, one can argue that more than 80% of the success of these ideas and programs lies in

the implementation on the dairy. The failure lies not in academia’s lap, but in the laps of the implementing dairies and their consultants. Successful implementation of programs on dairies goes beyond discussing new ideas at the breakfast table over a cup of coffee. With all the programs and new technologies, the purveyors of knowledge to dairies forget to involve the people responsible for making a program work. These programs not only need to be brought into the trenches, but they need to be incorporated into the daily routine and the proper methods demonstrated to accomplish them. This helps solidify the procedures in the minds of those implementing the program. Furthermore, there is a need for monitoring the results and helping to ensure that implementation has been effective, and to provide feedback to the people instituting the program so that they are aware of the progress they are making.

There are a number of programs available to help in the implementation of new technologies, including Dairy Breakthrough Management (Dairy BTM).<sup>1</sup> Dairy BTM is designed to prevent identifiable problems before they occur through implementation of standardized daily management processes. The desired critical control point management is accomplished through a combination of team building, employee education, proactive listening, process analysis, and problem solving exercises. The team meetings, which include the dairy’s management, employees, and advisors, result in standard operating procedures (SOPs) and monitoring processes that are implemented to achieve management goals.

## Employee Education

The personnel involved with a reproductive program are much more likely to take an active and concerned role if they understand the reasoning for the program. This includes a better understanding of the physiology of the reproductive cycle and an understanding of each step’s purpose. When developing the education material for reproductive programs, it is helpful to think in terms of why, who, what, where, when, and how. Why are we implementing a breeding program? What are we going to do? Who is going to do it? When is the best day of the week to accomplish it? Where are the cows that we need going to be? How are we going to make sure it gets done each week? If these types of ques-

tions are asked and answered, employees will be more willing and better able to implement programs successfully.

Another challenge is that of changing the way to look at reproductive performance. Many team members are still likely to be very tuned into conception rates and services/conception. There should be a discussion about new measurements of reproductive efficiency, such as pregnancy rates, and why they are better than some of the older measures.

### **Team Building**

With an understanding of the physiology of a reproductive program, a foundation has been established to underscore the importance of each task associated with the program. Much like the success of a running back and, ultimately, the success of the football team depends on the performance of the front line, a breeder's success and the success of the reproductive program depend on the success of everyone on the breeding team assuming responsibility for their jobs. Giving injections to only 90% of the animals each time injections are given will result in roughly 73% of the animals being set up properly to be bred on the targeted day. Therefore, the importance of compliance from every team member must be emphasized.

One challenge that should be addressed while team building is the attitude of some members to undertake more than they can accomplish. Through diplomacy and monitoring, those people can be convinced to allow others on the team to help them accomplish their tasks more thoroughly and efficiently.

### **Proactive Listening**

When building a reproductive program, it is very important that all members' concerns and ideas are heeded. One major issue is scheduling the day of the injections and breeding to address the timing of injections, time that cows are locked up, and other daily duties that will occur. When these issues are brought before the entire team (as opposed to being decided by people who are not directly involved with the tasks in question), invariably someone on the team has a workable solution or offers concessions to allow the new tasks to be woven into the daily routine of the dairy.

Another problem that often rears its head is buy-in from all the team members. It is not uncommon for some team member to dislike the idea of change in general, or targeted breeding programs specifically. As compliance will make or break an aggressive reproductive program, one person's attitude and defiance can doom a program. It is very important that the owner, manager, and veterinarian listen carefully and watch with dili-

gence the response to the outline of the program, so that all concerns are addressed, especially those in quiet opposition.

### **Problem Solving**

Not all dairies have the management and organizational skills to implement controlled breeding programs. These dairies are best approached after gaining some experience on dairies that have a better handle on these skill sets. Furthermore, emphasis on organizational skills may be warranted before trying to implement these types of programs.

Reproductive programs can be confusing for members of the team, especially when first exposed to the concepts and details. Implementing a program slowly and adding pieces to the program after each previous piece is running smoothly will help to increase the chances of success. When possible, it is better to delay implementing a reproductive program until after transition cow issues on the dairy are being managed properly. When beginning the reproductive program, focusing on a controlled breeding program for those cows just past the voluntary waiting period will allow the dairy management and team members to go slowly into a reproductive program and not be overwhelmed. After that portion of the program is running smoothly and the desired results are being achieved, then introduction of controlled breeding for cows later in lactation is warranted. Until that time, the dairy's regular routine can be used for breeding the cows later in lactation.

Issues that frequently come up when developing a reproductive program include what are the best days for injections and breeding, and should there be another breeder to help with the increased number of breedings on the targeted breeding day. Another question that should be addressed is the program best suited for this particular operation. Is a true ov-sync with no heat detection best suited for this dairy, or is a heat-sync program with daily heat detection more appropriate? The answers for each operation will be different and will depend on many issues, including the amount of time the injection crews have, what the breeder(s) is comfortable with, and success rates of various programs under the veterinarian's supervision with similar constraints.

Another important issue is how best to identify the targeted animals for the injection team and the breeding team. Each dairy and its personnel have different ideas on how best to address these issues. Some like to chalk the tail a different color, while others are more inclined to have a certain mark on the hip. Still others wish to work solely off a computer-generated list, with or without help managing that list. These are important issues to discuss so that from the onset there is a



clear and concise set of protocols for injecting and breeding the animals that will be enrolled.

### Process Analysis

A systematic approach to building a reproduction program follows these seven basic principles:

1. *Potential hazards are identified in the current process.*
2. *Determine critical control points for the identified hazards.*
3. *The critical limits are established.*
4. *Routine monitoring procedures that will be used to assess the critical limits.*
5. *Corrective actions are then put into place, in case the critical limits are exceeded.*
6. *Utilize the developed SOPs for employee training.*
7. *Verify the results.*

Through this process of establishing an implementation plan, there is improved communication among the dairy's management, employees, and advisors. The dairy more effectively uses employees' time and skills, and there is a clarification of each employee's role and management's expectations of them. These are frighteningly lacking on many dairy operations.

### Monitoring

The effectiveness of the program should be constantly evaluated. First, to be sure the program is working as designed, and later that the program hasn't changed due to the ever-present "procedural drift". Monitoring the results of a program can motivate the team to reach desired goals and reinforce the importance of their duties to the overall success of the program. Monitoring can also identify shortcomings of the program. Not achieving established goals or, worse yet, exceeding established critical limits can help identify unexpected hazards, poorly executed procedures, or overly optimistic goals.

Measuring progress must be accomplished with care. Monitoring systems tend to use averages which measure the central tendency of a normally distributed population, even when the parameter is not normally distributed. Such is the case with average days open, which has a skewed distribution to the right and should be measured by a median. Furthermore, averages give no indication of the spread of distribution around that mean. The average of 101 and 99 is the same as the average of 0 and 200, but the amount of variation in the second example is very large.

When monitoring programs, attention needs to be focused on the momentum and lag of the measurement.

Momentum, which occurs whenever events in the distant past are included in a current calculation, dampens and obscures recent change. Lag, which occurs whenever the outcome of an event cannot be measured for a period of time, will cause a delay in the appearance of results. Results can be further corrupted by bias. Bias occurs when there is a distortion of the true representation of reality through such things as the removal of certain animals in a calculation (cull animals in calculating days open), incomplete or inaccurate information (assuming certain cows are pregnant until checked open), or assumptions of the biology are wrong.

The items monitored should be measurable and be of importance to the overall effort of getting cows pregnant. Depending on the breeding program, the record system available and the dairy, different parameters will have different significance. As an example, if a breeding program is started slowly and emphasis is placed on the first cycle following the voluntary waiting period (VWP), looking at first-cycle pregnancy rate is a useful tool. When designing a monitoring program, its parameters should be framed to measure compliance and success.

Pregnancy rate measures the risk of a cow getting pregnant within a 21-day period. This can be further evaluated by days in milk (DIM) as well as by calendar date. Each suffers from lag and momentum. However, evaluating pregnancy rates by DIM and month bred or fresh date will eliminate the momentum and allow for a quicker assessment of the program's success (Figure 1).

Days in milk at first breeding (DIMFB) by fresh date removes the momentum that is seen if just analyzing the average DIMFB or even looking at the distribution of DIMFB. Graphing DIMFB by the fresh date depicts when cows are being serviced for the first time. It allows the team to evaluate how well the program is being implemented by pointing out when the program

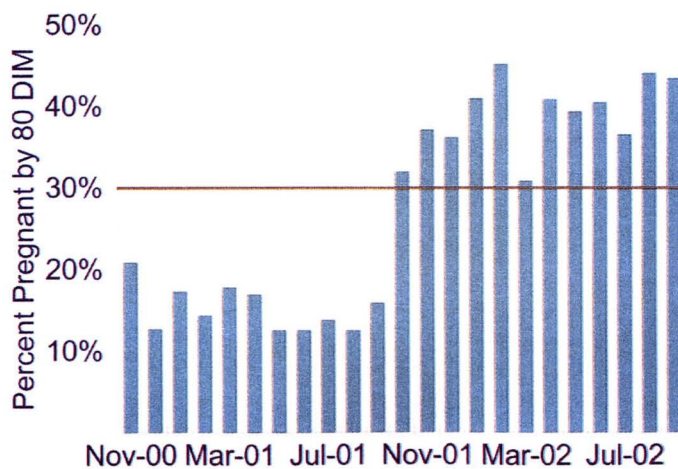


Figure 1. Cows pregnant by 80 days in milk.



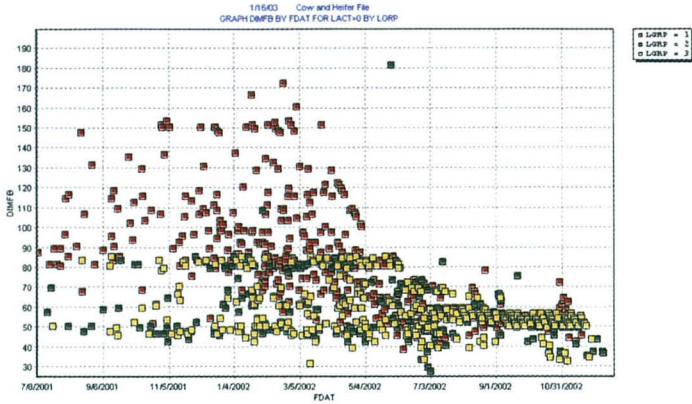


Figure 2.

began, and how many more individuals were bred within the specified time.

Along with using more sensitive measurements of implementation and success, there also has to be a method to determine the significance of the change in the parameters being monitored. One such method is following cohorts of cows that freshened at relatively the same time and evaluating deviations utilizing statistical process control (SPC). SPC will factor in the normal variation that occurs on a dairy and then determine if the apparent change in performance is part of the normal variation or a true change (Figure 3). SPC helps the team avoid making erroneous decisions, such as making changes in a program due to an apparent decrease in performance that is actually part of the normal variation of that dairy.

Benchmarking various reproductive parameters is also a very valuable tool (Figure 4). Anonymously com-

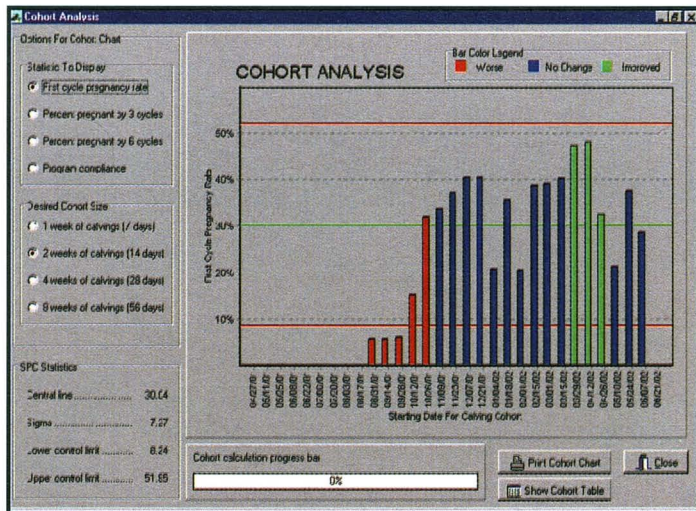


Figure 3.

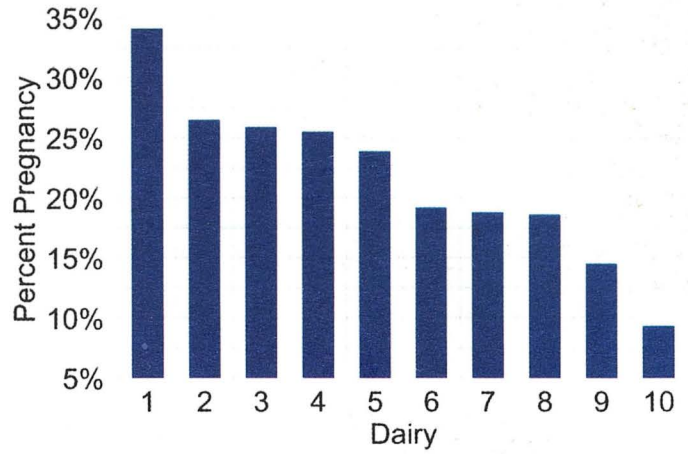


Figure 4. First cycle pregnancy rates.

paring one herd against others can motivate an owner and team to implement a program. After implementation, benchmarking can help a team to see its progress and motivate them to catch the front runners through more consistent compliance to the SOPs. It is also useful to spur a team back into action, if they have allowed themselves to slip away from the proper procedures and backslide in comparison to other herds.

It is through team building, employee education, proactive listening, process analysis, and monitoring that the dairy can have increased success with various programs, including reproduction. In most cases, without these in place, reproductive programs may observe initial success, but will ultimately slip through procedural drift and inattention, leading to mediocre results and renewed frustration in reproductive performance.

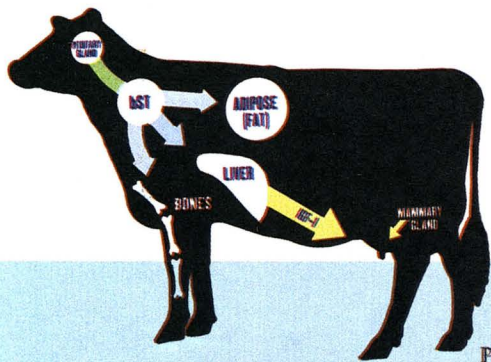
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1. Cullor JS, Nelson AM: Dairy breakthrough management - positioning for the future. *Proc 38<sup>th</sup> Annual Meeting of the National Mastitis Council* 31-33, 1999.



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