Using Farm Records to Set Benchmarks on the Farm

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Take Home Messages

- Proper data assimilation allows farm information to be used in decision-making.
- Regular evaluation of key data can allow early intervention to problem areas.
- Peer discussion groups can provide comparisons of local data for benchmarking herd progress.

Introduction

Management is a continuous process and the objective should be "forward motion". To monitor herd progress, producers need a basic understanding of where the herd is and what is the herd's (or management's) potential. The producer also needs to define where the farm would like to go.

Today's dairy producer has a wealth of information available about their dairy herd and their industry. Specific herd information may come from the nutrition consultant, herd veterinarian, or accountant. Industry benchmarks can be gathered from Dairy Herd Improvement Association programs (production), from accountants (financials), and from governmental agencies (National Animal Health Monitoring System).

The challenge to the dairy producer is to filter this information down into a manageable format. Done correctly, this will provide accurate information to facilitate management decisions. There has been much written lately about benchmarking processes, in both popular press and industry-related media. When defined accurately, monitors can indeed provide important information to assist in decisions.

■ Designing Benchmarks

Defining the Benchmarking Process.

Benchmarks were designed to assist the producer in evaluating herd progress. There have been several programs designed to facilitate this process. Available programs include Dairy Excel (Brockett et al., 1997; The Ohio State University; http://ohioline.osu.edu/b864), PRO-DAIRY (Cornell University; www.ansci.cornell.edu/prodairy), Dairy Break Through Management (Cullor and Nelson, 1999) and Dairy*Works*™ (www.choicemall.com/dairyworks); however, this is not an exhaustive list.

Terminology used in benchmarking discussions is not always consistent. Consider the following terms as defined in Webster's Dictionary:

Benchmark - A standard point of reference in measuring quality.

Goal - An end that one strives to attain.

Monitor – Something that reminds or warns.

Parameter – A constant, with variable values, used as a reference for determining other variables.

For the purpose of this paper, a goal is where the producer would like to go. These should be aggressively better than the current position, but realistic and reachable. A benchmark is a moderate- to long-term position of herd movement. This may be a recent history of measures (recent six months to a year). A monitor is a short, focused group of parameters that is reviewed frequently to evaluate short-tem positions.

Defining the Monitor.

Before the process of defining the monitor begins, it is a valuable to look at historical records for general trends in production. These may be gathered from DHIA summaries, consultant information, or other information the dairy accumulates. However, care should be taken to avoid getting bogged down in the past. Too many times producers try to look at all information available and then piece it together to complete the puzzle. However, perhaps what should happen is that specific questions are asked and then information is targeted that can answer these questions.

Once current status has been established, the producer needs to break the dairy into manageable sections. Obvious sections include milking, feeding, breeding, and health. Dividing the dairy into manageable sections will allow the

producer to ask specific questions about what affects the success (or breakdown) of these areas. Table 1 gives examples of questions to ask and identifies parameters to monitor. Each parameter monitored should relate directly back to a management action. For example, a sudden increase in retained placentas suggests evaluating housing hygiene and calving management (observation, assistance, hygiene). Remember, the purpose of monitoring is not to follow a problem until we are certain it exists, but rather to detect a problem as early as possible to head off additional victims.

Table 1. Defining parameters to answer production questions.

AREA	QUESTION	PARAMETER
Production	Are cows set up to peak?	Fresh cow milk production
Reproduction	Are cows being seen in heat?	% heat detection
Reproduction	Are cows getting pregnant?	Number of cows bred in herd
Herd Health	How are cows transitioning from the dry period into lactation?	Incidence of metabolic diseases
Herd Health	How is udder health?	Current level of clinical mastitis; fresh cow mastitis level
Replacements	Are heifers coming into lactation timely?	Average age at first breeding

As we begin to identify parameters to monitor, there are a few intrinsic data characteristics to consider in order to avoid problems in information management. Stewart et al. (1994) list these as variation, momentum, lag, and bias.

Variation. When evaluating simple averages, a few exceptional values can skew an average quickly. An example of this is tank somatic cell count: one high producing cow with an exceptionally high SCC can quickly raise the tank

average. This may raise a flag for a herd SCC problem that may actually involve only a few animals.

Momentum. Considering momentum helps keep historical information in perspective. An example is days in milk (DIM) to first breeding. This includes cows that were bred months ago, when our interest should be in the situation, as it now exists.

Lag. Lag is a very inherent part of the livestock business. This is the time between when an event happens and when it is measured. An example is looking at peak milk production. Cows failing to reach good peak milk production levels are usually a fault of transition problems. Why wait until we see poor peak production levels to back-track and identify problems? Perhaps tracking first-test-day milk (less than 30 days) would give an earlier flag.

Bias. Bias occurs if a measure either includes or excludes cows inappropriately. Again, using the example of DIM to first breeding, this value typically includes cows never bred.

These characteristics need to be considered when identifying parameters to include in a monitor. It's very important to continually step back and repeat the question through this process. Table 2 illustrates problems associated with traditional parameters. The dangers in not keeping focused when defining monitor parameters are several fold: (1) include too much data and information doesn't get used for decisions; (2) the right parameters get left out of the monitor and the original question is not addressed; and (3) the wrong parameters get put into the monitor and data is not timely. Remember, information is only useful *if it's used*.

Table 2. Inherent problems associated with monitor values.

Parameter	Violation	Explanation
Days Open	Variation	One high value can skew the average in a small herd.
Calving Interval	Lag	Requires two consecutive fresh dates; information is at least 9 months old; does not reflect any change in reproductive performance in the last 6 months.
Age at Freshening	Variation, Momentum, Lag, Bias	One or two high values will skew average; twelve months of momentum; nine months of lag; does not include heifers that never conceived.

Data Collection & Assimilation.

Once the parameters have been defined, a simple system of data collection must be devised *and established*. Additionally, data must be put into a format that is easy to read and makes sense to the end-user. Many producers have learned their herd data programs to the point they have built individual tables or identified key graphs to evaluate on a regular basis. Programs such as Dairy Comp 305 (Valley Ag Software, Tulare, CA) and PC Dart (DHIA, Raleigh, NC) allow several types of information to be retrieved. Additionally, some producers have gone even further and designed simple spreadsheets for use with production teams (feeders, breeding crew, health managers, milking crews). While development of these spreadsheet programs can be an initial time investment, they can be very customized for each operation and can be a great teaching tool for regular job communication.

Data processing in an important step in quickly looking at monitors and using the information. Part of data processing is determining critical points and identifying outliers. Using displaced abomasums in cows less than 30 DIM as an example, the herd may typically fluctuate between one and three percent depending on the weather and time of year. Deciding at what point above three percent (five, six, seven percent?) do you investigate your transition program is what defines your critical upper limit. Defining critical ranges (upper or lower limits of acceptability) are a start to identifying program successes or failures.

Data Communication.

Communication is key to information use. There is no point in asking how to improve herd performance if you aren't willing to consider the answer.

Management on the dairy has traditionally been defined as the owner (or managing partner). In recent years, much has been written to expand this thinking into management teams. These teams may include the owner, manager, nutritionist, veterinarian, or other advisors familiar with the operation. However, as with any industry, there are actually several layers of management throughout a dairy operation. Think of management as being the ability to identify an issue and execute a coarse of action. Expanding the thought process to this extent, and you now add the lead milker, head feeder, lead breeder, etc. into the management scheme.

There are two levels at which farm information may be viewed. One would be from the overall management's perspective. This may include comparing the herd's performance to local, state or national averages. A second view of the information should be at the different team levels within the dairy. Communication with employees actually doing the daily work is a valuable form of reinforcement or correction of specific daily protocols.

Peer Groups. This is a venue for discussion of production or other issues with a group of producers having similar goals. It provides local data collection for comparison both within the group and with national numbers. Care must be taken when comparing parameters as many are not standardized in definitions and may be calculated differently by different sources. One of the advantages to forming a peer group is that information can be standardized across the group for accurate comparisons.

Management Teams. Forming management teams across the dairy allows the producer to facilitate positive working relationships with the employees actually doing the work. Giving regular feedback to employees on performance measures in their area can be used as tool to evaluate both the working protocol and the daily execution of the protocol.

■ Summary

Industry benchmarks can be gathered from many sources; what producers do with this information defines how they grow their business. Putting management abilities on a grading scale, our support industry's interest should be to keep moving an individual farm from a 'C' to a 'B' and then on to an 'A'. Management skills grow when decisions are based on real-time information.

Mounds of data are generated every day on commercial dairies; filtering this down into useable information is an investment in the future of the business.

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