Managing the Dairy Farm:
Key Performance Indicators

Thomas Fuhrmann, DVM

DairyWorks, PO Box 2800-317, Carefree AZ 85377
Email: DairyWorks@aol.com

■ Take Home Message

This paper discusses how to use information to manage work and worker performance.

ᐅ Management principles for successful dairy farm businesses are three:

      a. Organize work for efficiency and productivity
      b. Train and motivate workers
      c. Monitor the results of work and workers

ᐅ Historically dairymen used numbers to manage cows; now there is a growing demand to use data to manage workers.

ᐅ Information flows through a four step process on dairy farms; collection, analysis, interpretation and use to take action.

ᐅ Key Performance Indicators (KPI's) can be adapted from other industries and used to monitor work and workers.

ᐅ KPI's have been used on some dairies to improve performance and profitability; a case study is presented to demonstrate their use.

ᐅ KPI's can be used to form the agenda for management meetings, to provide worker feedback, to focus employees on results, and to improve the productivity and profitability of the dairy enterprise.

■ Introduction

Dairy farming is no longer simply "a way of life". Rather it is a business and is most successful when managed according to sound business principles. Most dairy farms in North America, whether small or large, are family businesses. This paper discusses how to use information to manage the family business to improve its productivity and profitability.

■ Dairy Business Management Principles

Management principles of most successful businesses can be identified as: 1) organize work to maximize efficiency and productivity; 2) train and motivate workers to implement the work systems; 3) monitor both the work and work systems to ensure desired results are attained. Successful dairy business men and women adapt these principles to their dairy enterprises. As dairy farms become larger and utilize new technology, organizing work to maximize productivity and efficiency becomes an ongoing challenge. Training farm workers is always necessary when workers are involved, but it is not necessary unless work is organized. Historically dairy farmers trained and motivated their employees by demonstration, by "just doing it". But when dairy owners and managers become removed from daily cowside activity other methods of employee training are needed. Motivating employees, finding ways to "get them to do it right", requires extraordinary efforts to communicate to employees the results of the work they do.

Monitoring work systems and workers is the management principle most difficult to adapt to modern, large dairy business management. Historically information was complied on dairies to evaluate animal performance. As a result, most dairymen have mounds of records, but do little with this information regarding analysis of work systems or workers. For example, there are more than 15 parameters to measure fertility (e.g. conception rate, heat detection rate, pregnancy percent, pregnancy rate, calving interval, days to first service, days open, percent of the herd pregnant, days open, days in milk, abortion rate, etc.) but most of these data do not monitor work systems or workers. Rather this mountain of information paralyzes managers to inactivity.

■ The Information Management Process on a Dairy

To be useful to dairy owners and managers, information must flow through a four-step process. Information must first be collected, then analyzed, interpreted and finally used for management action.

The first step, to collect appropriate data to manage work and workers is often absent, abused or simply not structured. For example, most dairy managers expect AI technicians to record breedings and input that information into databases to calculate conception rate to monitor their ability to correctly thaw and deposit semen in the reproductive tract. Fewer dairies collect information on heat detection rate and therefore cannot assess the technician's ability to identify cows in heat. Unless dairy managers take an active role to define what must be collected, data to judge work and worker performance is simply not available for the next step of information management.

Analyzing information is the second, "no brainer" step in information management. It is simply moving collected data into a format to accomplish the third step to interpret. On today's dairy enterprises, managers depend upon software programs to arrange data into reports, spreadsheets and graphs for further use. Unfortunately no one single software program integrates all collected information into one report for managers to assess work and workers. For example, total protein results from newborn calves may be the ideal data to interpret whether maternity personnel feed colostrum correctly. But to have this information, a dairy manager must not only decide to collect and process blood samples from calves, he/she must do the calculations or devise the spreadsheet to present the data for interpretation.

Interpreting data occurs when managers make judgments about work and workers from the data they've collected and arranged. Interpretation of work and workers is impossible without standards. Standards are goals established by dairy managers and are expected results when work is organized and workers perform. For example, data processed from the maternity area identifying that 90% of all calves have total protein scores greater than 5.0 means little; but when the goal of the "colostrum delivery program" is to have greater than 95% of all calves score greater than 5.0, the data can easily be interpreted. The key to data interpretation is to present "results" adjacent to "goals".

■ **Key Performance Indicators**

Key Performance Indicators (KPI's) are used throughout businesses and industries to monitor work systems and focus workers. In the dairy business, KPI's are:
1. A small number of strategic measurements
2. Collected from each area of the dairy
3. Representative of general performance
4. And can be measured and monitored frequently (daily).

First, the dairy must be organized into departments for which a person and his/her team is held responsible for results. Then all the work that the team does is organized for efficiency and productivity. From all the data collected, a key indicator is selected and compared with standards daily or as often as is practical. Feedback to workers is critical to get them to focus them on their results and identify and correct problems on a timely basis.

Key Indicators are determined by the owner or manager. They are numbers that reflect the efforts of workers as much as possible. For example, total protein values in day old calves are elevated to 5.0 or greater if adequate volumes of high quality colostrum are fed soon after birth. When the "colostrum delivery system" is correct and total protein values are monitored,

the reason for low total protein levels is when workers do not follow the system correctly. A goal can be established, such as greater than 95% of all calves tested have total protein levels of greater than 5.0. Thus, measuring total protein levels in newborns is a key indicator for the team of workers assigned to the job of feeding colostrum. The total protein test can be done routinely, results tabulated often and monitored by the manager. Feedback to workers can occur on a routine basis. Good results motivate workers and give them confidence in "the system". When results are out of compliance, solutions can be developed on a timely basis.

■ Case Example

A 3,000 cow dairy in the Southwestern US used the KPI concept to identify an out of compliance involuntary cull rate. A graphic display of cows culled by days in milk from May 1, 2002 through September 30, 2002 is displayed in Figure 1. The manager identified an opportunity to decrease the number of cows leaving the herd during the first 60 days in milk. All of the cows leaving in the first 60 days are involuntary culls. 24.8% (17.6 + 7.2) of total cows culled left the herd by 60 days. (This represents 4.8% of the herd culled). Record analysis identified four problem areas: uterine health, mastitis, digestive problems and loss due to injury.
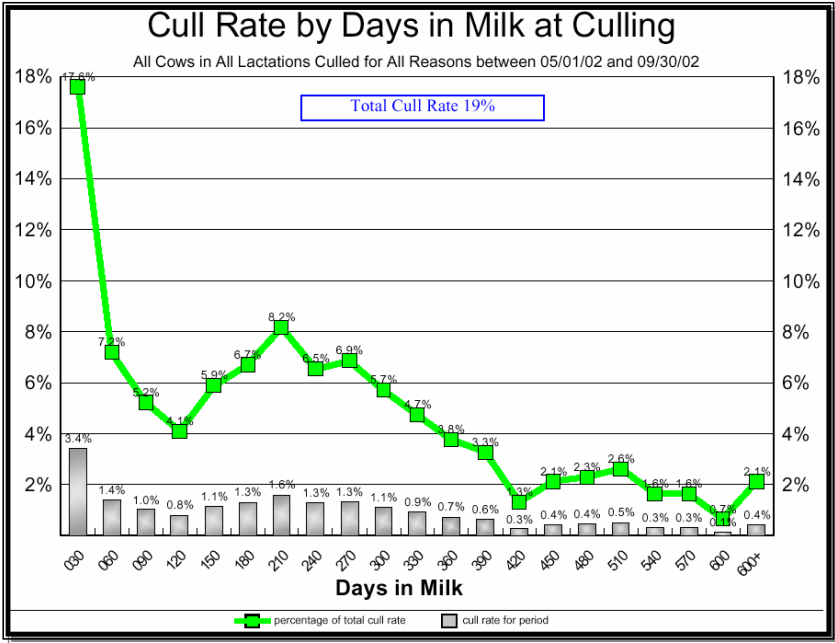

Figure 1.

An action plan to improve the involuntary cull loss from 24.8% to a goal of less than 15% was implemented. Work systems were changed in the close-up, maternity and fresh cow areas and all workers were retrained in the new protocols. The herd veterinarian and nutritionist were consulted and involved in designing new protocols and retraining employees. Results were monitored and presented at monthly employee meetings and during one-on-one conversations between the manager and employees.

Results of cows culled by days in milk for May 1, 2003 through September 30, 2003 are displayed in Figure 2. The percent of cows culled within the first 60 days in milk decreased from 4.8% to 2.1%. The percent of total cows culled decreased from 24.8% to 13.2%. Cows culled decreased from 153 to 69. The survival of those additional cows resulted in a substantial return on the minimal investment. Eighty-three survivals valued at $1,500 per cow represent a value of $124,500.
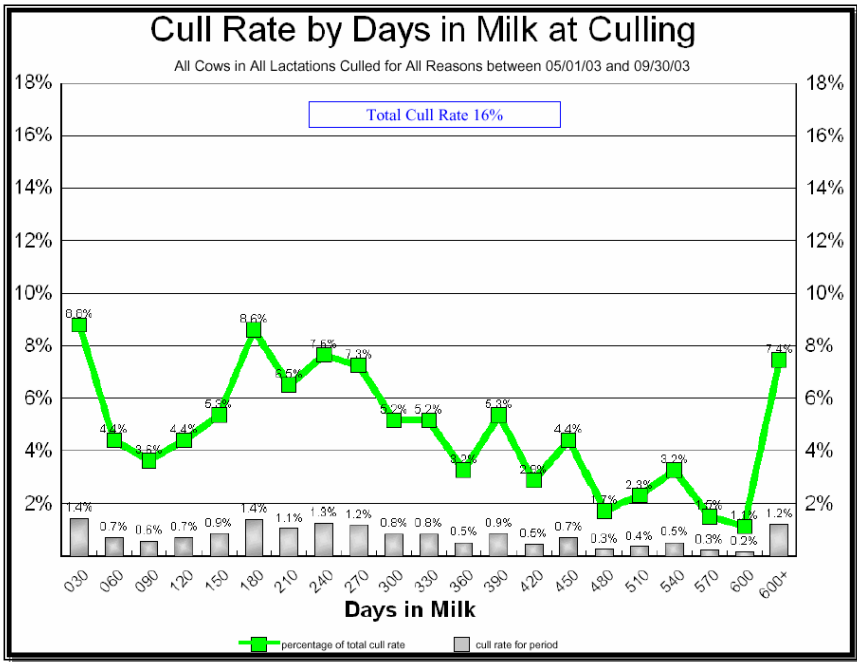

Figure 2.

■ Implementation of the KPI Concept

Successful use of KPI's to improve dairy business management begins with the dairy owner or farm manager organizing the dairy enterprise into

departments.   He/she then selects the Key Indicators to measure and establish the goals for each indicator. Second, the owner/manager sets systems in place such that essential cowside information is collected daily, as it occurs. This may require using customized preprinted forms to guarantee that appropriate information is tabulated by workers. Third, spreadsheets or an alternative method of daily tabulation needs to be available for workers (or a secretary) to enter data and perform calculations.   This is important because if data cannot be collected easily and computed accurately, its use to focus workers is just not practical. Finally, reports are produced that show results right next to the goals established for each indicator for each department. When this information, a "dairy report card" is available daily, owners or the manager can immediately prioritize their activities to focus on work and workers out of compliance. Feedback to workers is available immediately, daily, weekly or at monthly meetings to motivate workers and build their confidence.

Good dairymen can become excellent dairy managers by implementing the KPI concept in their businesses. They will do well to remember:

1. The primary use of KPI's is to measure worker performance.
2. KPI's are not a perfect measurement and must be interpreted with people impact and cow variation in mind.
3. KPI's can be used to focus employees when used to provide feedback to them.

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