QUALITY MANAGEMENT STANDARDS FOR DAIRY EXCELLENCE

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ABSTRACT

The ISO 9000 quality management standard is a valuable management tool that has helped many businesses to align their business practices and operational systems with the expectations of their customers. Springing from the success of the ISO 9000 standard are the ISO 14001 and OSHA 18001 standards that extend quality management principles to environment and health and safety management. These management standards can be very valuable management tools, as the dairy industry seeks to respond to the ever ever-increasing demands of the consuming public.

KEYWORDS. ISO 9001, ISO 14001, OHSAS 18001, HACCP, quality, process, system, efficiency.

INTRODUCTION

The dairy industry has long been committed to quality. Dairy farmers in partnership with processors and government inspectors have provided consumers a wholesome, safe, nutritious product. Perhaps the most significant development was milk pasteurization. In the U.S. the current pasteurized milk ordinance (PMO) can be traced to federal efforts in 1924 to assist the state of Alabama with developing criteria for the sanitary handling of milk and dairy products. Today the PMO is enforced by state departments of public health or departments of agriculture through the interstate milk shippers. These state inspectors often work in concert with dairy employees, their veterinarian or and other advisors and processing plant personnel to assure the highest quality product is produced. In the mid-1980's many milk processors began offering quality premiums as incentives to encourage quality production and reward dairy businesses that succeeded. The criteria used to define quality included somatic cell counts, plate counts, sediment, and water. In 1986 the Dairy Beef Quality Assurance program was launched that focused on antibiotic residues. The positive results of these collective efforts over many years are well documented. Product shelf life was improved. Antibiotic residues were significantly reduced.

QUALITY BUSINESS

Today, the American consumer is not only interested in the product produced, but also "from whence it comes". Was the environment harmed? Were any animals mistreated? Were vulnerable workers exploited? Is the product safe? Has the product been tampered with? What technologies or practices were employed in the manufacture of the product? These abstract, sometimes called "soft", characteristics of product quality are difficult to measure and even more difficult to differentiate through existing marketing and distribution channels. The primary approach that has been used to date is with regulations. While this approach usually sets forth clear expectations and provides reasonable assurance that the worst offenders are appropriately dealt with, it doesn't focus the business on the consumer's objectives nor does it reward the business for excelling in these areas.

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These challenges are not unique to dairy or agriculture but are common to most all industries. The response by many businesses is to embrace some form of quality management. One of the earliest advocates of quality management was Dr. Deming's total quality management (TQM). Motorola in the mid 1980's developed a methodology known as Six Sigma. Their approach was later adopted by Jack Welch, then Chairman and Chief Executive of General Electric. GE's success prompted many other businesses to adopt Six Sigma quality as well. Around the same time (1984) the ISO 9000 series (9001, 9002 and 9003) of quality management standards was published (ISO, 2000). The standard had a decided emphasis on manufacturing businesses but did include some provisions for service industries as well. The 1984 standard was later revised and republished as what is known today as ISO 9001:2000.

Several examples of quality management concepts are present within the dairy industry. Dr. James Cullor from the University of California, Davis developed "Dairy-BTM" drawing from the concepts of Hazard Analysis and Critical Control Points (HACCP) and Breakthrough Management (BTM) (Cullor, 1999). These efforts were further supported and extended through the involvement of what was formerly Pharmacia & Upjohn, now Pfizer. Dr. Thomas Fuhrmann has developed a program called DairyWorks™. This program draws from the concepts of total quality management but focuses on improving efficiency and consistency of dairy operations. Dairy Strategies, LLC has developed a program, Dairy OnTime™ that seeks to encompass all aspects of the business into an integrated operational system.

INTERNATIONAL QUALITY STANDARDS

All of these programs share common elements – goal setting, monitoring, employee training, and standard operating procedures. Yet each stops short of a quality management system that could be recognized by the broader international business community. ISO 9000 continues to gain support and recognition around the world. Many food companies have become certified to this standard. They have further found that the ISO 9000 quality management system provides a valuable framework for implementing HACCP, GMP's (Good Manufacturing Practices) and similar programs. Furthermore, other international standards initiatives have sprung from the success of ISO 9000. Most notable is the ISO 14001 standard for environmental management. Another, OHSAS 18001, while not an ISO standard, draws from similar approaches to the ISO 9000 standard to address occupational safety and health.

The ISO 14001 standard was published in 1996. It provides a system for addressing the environmental policies, objectives, procedures, principles, authority, responsibility, accountability and implementation of an organization's means for managing its environmental affairs. It drew from the pioneering efforts of ISO 9000. Prior to publication of the standard, environmental initiatives (or pollution control initiatives as they were previously referred) were largely regulatory driven. However, the ISO 14001 initiative had a distinct focus on voluntary initiatives. There have been 36,000 ISO 14001 registrants since 1996 with 1,650 in the U.S. Japan, United Kingdom, Germany, Sweden and Spain each have more certificates issued than the U.S.

The Occupational Health and Safety management system standard (OHSAS 18001) was created in 1999. It is not an accredited standard. However, registrars can certify a company if desired. It was designed for compatibility with ISO 9000 and ISO 14001. As such, it is very useful for companies moving forward with complete systems integration. The focus of the standard is on hazard identification, risk assessment, and risk control. It addresses routine and non-routine activities involving employees, contractors and visitors, providing a framework for occupational health and safety objectives.

THREE CATEGORIES OF CLAUSES

ISO is known for its focus on documentation (Newslow, 2001). The guiding principles are: Write down what you do, do what you say you do, document what you have done, and audit to confirm compliance. Deviations are addressed in the corrective and preventive actions systems. The

twenty clauses of ISO 9001 can be divided into three categories: Plan the business, control the process, and maintain the system.

- **Plan the Business.** Management Responsibility (4.1) and the Quality System (4.2) relate to the quality policy and defined objectives to achieve them. These apply to implementing policy, documenting the system and the need to control all activities.

- **Control the Process.** The clauses of the standard that place the greatest emphasis on the controls associated with producing milk and beef from a dairy business are as follows: Contract Review (4.3); Purchasing (4.6); Product Identification and Traceability (4.8); Process Control (4.9); Inspection and Testing (4.10); Control of Inspection, Measuring and Test Equipment (4.11); Inspection and Test Status (4.12); Control of Non-conforming Product (4.13); Handling, Storage, Packaging, Preservation and Delivery (4.15); and Statistical Techniques (4.20).

- **Maintain the System.** Once the system is implemented, it is necessary to ensure that it continues to operate effectively. The clauses of the standard that are significant to this are Management Review (4.1.3), Document and Data Control (4.5) Corrective and Preventative Action (4.14), Control of Quality Records (4.16), Internal Quality Audits (4.17), and Training (4.18).

SUMMARY

The ISO 9001:2000 Model is presented in Figure 1. It's an important point to remember that the ISO standard does not determine how manure should be hauled, how animals are to be handled, or how milking procedures should be performed. Rather, it is an effective management tool for providing discipline to the business. Corrective and preventative action requirements not only evaluate existing problems for correction and root cause analysis, but evaluate the processes which may identify and address potential problems. The structured internal audit program provides discipline to assure effective monitoring of processes. When implemented, its requirements will be integrated into the existing processes of the dairy business. But it will improve the process through continuous improvement, contribute to the profitability of the business, and focus the business on the requirements of the customer.

REFERENCES

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Figure 1. The ISO 9001:2000 Model

ISO 9001:2000 Model

Continual Improvement of the Management System

Customers

Customers

Management Responsibility

Resource Management

Measurement, analysis and improvement

Satisfaction

Production service delivery

Requirements

Input

Product

Output