ISO 22000 to ensure integrity of food supply chain

by **Jacob Færgemand** and **Dorte Jespersen**

Failures in food supply can be dangerous and cost plenty. ISO 22000 for food safety management systems is intended to provide security by ensuring that there are no weak links in the food supply chain.

ISO/22000, *Food safety management systems – Requirements throughout the food chain*, is currently at the stage of Draft International Standard (DIS). It is expected to be available as an International Standard in 2005. The standard can be applied on its own, or in combination with other management system standards such as ISO 9001:2000, with or without independent (third party) certification of conformity.

What is the standard about?

ISO 22000 specifies requirements for a food safety management system in the food chain where an organization

- needs to demonstrate its ability to control food safety hazards in order to consistently provide safe end products that meet both the requirements agreed with the customer and those of applicable food safety regulations, and
- aims to enhance customer satisfaction through the effective control of food safety hazards, including processes for updating the system.

Who are the intended users?

ISO 22000 may apply to all types of organizations within the food chain ranging from feed producers, primary producers through food manufacturers, transport and storage operators and subcontractors to retail and food service outlets – together with inter-related organizations such as producers of equipment, packaging material, cleaning agents, additives and ingredients.

Food safety is related to the presence of and levels of food-borne hazards in food at the point of consumption (intake by the consumer). As food safety hazards may be introduced at any stage of the food chain, adequate control throughout the food chain is essential. Thus, food safety is a joint responsibility that is principally assured through the combined efforts of all the parties participating in the food chain.

Why is it important now?

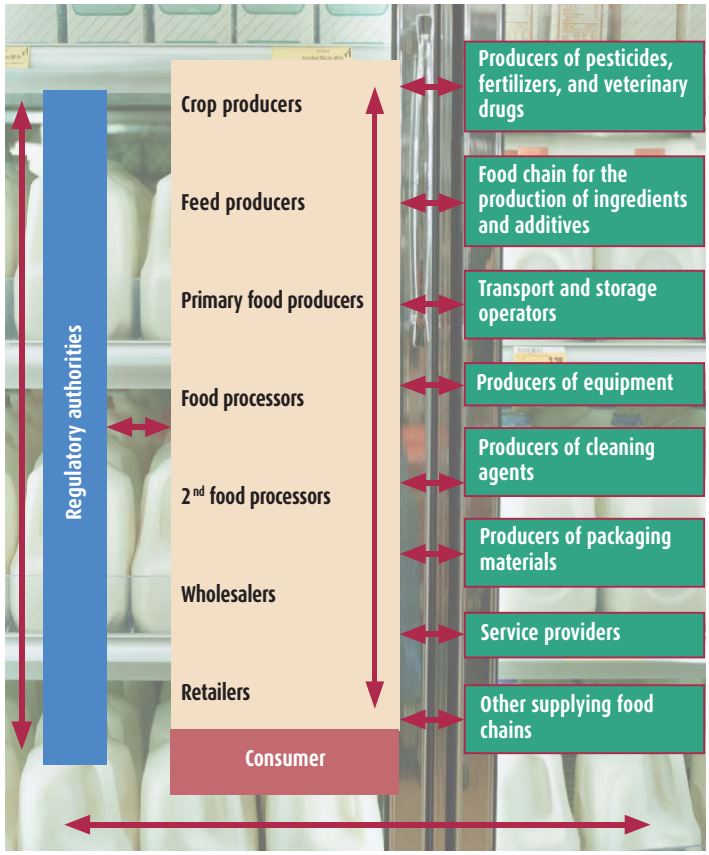
Organizations that produce, manufacture, handle or supply food recognize the increasing requirement of customers for them to demonstrate and provide adequate evidence of their ability to identify and control food safety hazards and the many conditions impacting food safety.

ISO 9001:2000 on quality management does not deal specifically with food safety. As a result, many countries, such as Denmark, the Netherlands, Ireland and Australia amongst others developed voluntary national standards and other documents specifying auditable requirements for food safety management systems.

The number of national standards has led to confusion. Consequently, there is a need to harmonize the national standards on an international level. This was the reason why the Danish Standards Association (DS – **www.ds.dk**) submitted a new work item proposal for a food safety management systems standard to the secretariat of ISO/TC 34, *Food products*, in 2001.

Figure 1: Example for communication along the food chain.

Arrows indicate interactive communication.



What does it cover?

The standard will combine generally recognized key elements to ensure food safety along the food chain, as follows:

- *Interactive communication*

Communication along the food chain (see Figure 1) is essential to ensure that all relevant food safety hazards are identified and adequately controlled at each step within the food chain. This implies communication of the needs of the organization to both organizations upstream in the food chain and organizations downstream in the food chain. Communication with customers and suppliers, based on the information generated through systematic hazard analysis, will also assist in substantiating customer and supplier requirements with regard to their feasibility, need and impact on the end product. The standard will require that such communication is planned and maintained.

- *System management*

The most effective food safety systems are designed, operated and updated within the framework of a structured management system and incorporated into the overall management activities of the organization. This provides maximum benefit for the organization and interested parties. ISO 22000 will take due consideration of

the requirements of ISO 9001: 2000 in order to enhance compatibility of the two standards and to allow their joint or integrated implementation.

- *Hazard control*

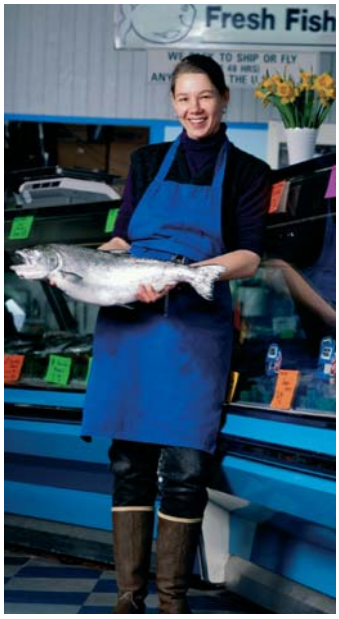
Effective systems that are capable of controlling food safety hazards to acceptable levels in end products that are delivered to the next link in the food chain require the balanced integration of prerequisite programmes [1] and a detailed HACCP (Hazard Analysis and Critical Control Point) plan.

ISO 22000 may apply to **all types of organizations** within the food chain

ISO 22000 will dynamically combine the HACCP principles and application steps with prerequisite programmes, using the hazard analysis to determine the strategy to be used to ensure hazard control by combining the prerequisite programmes and the HACCP plan.

The standard will further clarify the concept of prerequisite programmes. These are divided into two subcategories: infrastructure and maintenance programmes and operational prerequisite programmes.

Infrastructure and maintenance programmes are used to address basic requirements of food hygiene and accepted good practice of a more permanent nature, whereas operational prerequisite programmes are used to control



or reduce the impact of identified food safety hazards in the product or the processing environment.

The HACCP plan is used to manage the critical control points determined to eliminate, prevent or reduce specified food safety hazards from the product, as determined during hazard analysis.

What are the benefits for users?

The benefits for organizations implementing the standard include among others the following:

- organized and targeted communication among trade partners;
- resource optimization (internally and along the food chain);
- improved documentation;
- better planning, less post-process verification;
- more efficient and dynamic food safety hazard control;
- all control measures subjected to hazard analysis;
- systematic management of prerequisite programmes;
- widely applicable because it is focused on end results;
- valid basis for taking decisions;
- increased due diligence;
- control focused on what is necessary, and
- saves resources by reducing overlapping system audits.

What are the benefits for other stakeholders?

The benefits for other stakeholders may include

- confidence that the organizations which are implementing the standard have the ability to identify and control food safety hazards.

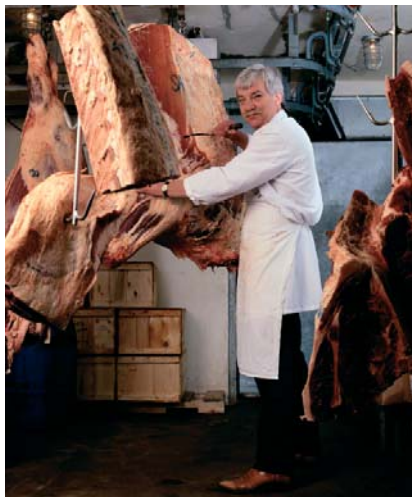
Furthermore, the standard adds value because of the following features:

- international;
- provides potential for harmonization of national standards;
- food processors are waiting for this standard;
- provides a reference for the whole food chain;
- provides a framework for third party certification;
- fills a gap between ISO 9001:2000 and HACCP;
- contributes to a better understanding and further development of Codex HACCP;
- auditable standard with clear requirements;
- system approach, rather than product approach, and
- suitable for regulators.

Status of the work

The Draft International Standard ISO/DIS 22000 was issued on 3 June 2004. The deadline for comments is 3 November 2004. ISO 22000 is expected to be available as an International Standard in 2005.

The standard is being developed by working group WG 8, *Food safety management systems*, of ISO technical committee ISO/TC 34, *Food products*. The 6th meeting of the working group took place on 21-22 June 2004 in Copenhagen, Denmark.



1) A prerequisite programme is a specified procedure(s) or instruction(s), specific to the nature and size of the operation, that enhances and/or maintains operational conditions to enable more effective control of food safety hazards and/or that controls the likelihood of introducing food safety hazards and their contamination of or proliferation in the product(s) and product processing environment.

Experts from the following countries are currently participating in the working group: Argentina, Australia, Belgium, Canada, Denmark, France, Germany, Greece, Hungary, Indonesia, Ireland, Italy, Japan, Netherlands, Republic of Korea, Poland, Republic of Korea, Sweden, Switzerland, Tanzania, Thailand, United Kingdom, United States and Venezuela.

The following organizations have liaison status: Confederation of the Food and Drink Industries of the European Union (CIAA), Codex Alimentarius Commission, CIES/Global Food Safety Initiative, and World Food Safety Organization (WFSO). •

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