

## **Case Study**

### **Quality Tools in the USDC Seafood Inspection Program**

#### **Introduction**

The United States Department of Commerce Seafood Inspection Program provides a voluntary inspection program to the industry (under the authority of the Agricultural Marketing Act of 1946). The Seafood Inspection Program offers a variety of professional inspection services which assure compliance with all applicable food regulations. In addition, product quality evaluation, grading and certification services on a product lot basis are also available. Benefits include the ability to apply official marks, such as the U.S. Grade A, Processed Under Federal Inspection (PUFI) and lot inspection marks.

These services can be provided worldwide. All types of establishments such as processing plants, vessels, and retail facilities may receive these services. All edible product forms ranging from whole fish to formulated products, as well as fish meal products used for animal foods and dietary supplements are eligible for inspection and certification. The official government forms and certificates issued by USDC inspectors are legal documents recognized in any U.S. court.

Firms participating in the Program rely on the service to provide unbiased and fair assessments of their products, processes, and systems. The service works diligently to use as many tools and methods as possible to reach this expectation and provide professional decisions in their activities.

#### **Quality Tools in the Food Industry**

The food industry has been using the quality tools in various ways for many years, although they were probably not aware of their origin. Control charts are commonly used in the canning industry to control time temperature of retort operations. Pareto analysis is often used to determine score factors in the development of U.S. Grade Standards for food products. Informal brainstorming techniques are used in hazard analysis which is required now for the safety of most processed foods. However, by far the most used quality tool is the flow chart.

Nearly every food processing operation is now required to flow chart their process. This is used to begin the identification of hazards as part of the food safety control system Hazard Analysis Critical Control Points (HACCP), which many countries have implemented as law for the control of food safety hazards. The flow chart is developed and the hazards are identified for each step in the process, including those inherent in the food as well as those added at that step (control point) as part of the process. The methods used are highly similar to those of process mapping. However, most firms do not go further in using the flow chart to determine non-value added points in the system. Therefore, they have not utilized the full potential of the quality tool.

#### **Specific Use of Quality Tools to Solve a Problem**

From 1977 the USDC Seafood Inspection Program relied upon Federal Standard 369 as a basis for determining the compliance of a food operation to sanitation requirements.

Developed with the military to serve the needs of both agencies, inspectors would evaluate the facility against this standard and provide a rating through a total score. The firm was required to gain a score of 90% or higher to pass the inspection. In addition to the score there were several line items that would be rated “Critical” if assessed and at this point the facility would fail the evaluation. Inspectors also had the authority to increase a point line item to a “Critical” if they deemed necessary. This standard worked well if all inspection personnel were viewing the operation in precisely the same manner. However, as with any field force, this is rarely achieved and as such difficulties arose with the use of this rating system.

In 1992 the Program began evaluating methods for the standardization of this sanitation rating. An analysis of the scores determined that although overall scores were generally the same for each inspector, different inspectors evaluating the same firm came to different scores. Further it was apparent these scores followed a pattern indicating a particular inspector would give similar scores to various plants. Subsequent analysis showed that inspectors would use the point system to gain correction. For example, if a line item had a score value of up to 5 points, the inspector might rate that first “violation” at 2 points. If later inspections did not show correction of the deficiency, the inspector would then rate it 4 or 5 points, even though the severity of the issue did not change. Gaining standardization of the process under this scenario would be difficult. Also making standardization difficult was the fact that the Program could not get agreement as to whether a situation was 1 point or 5 points in value.

To solve this problem a team took line item data from the standard over a ten year period of all firms evaluated. The data was ranked using the techniques of a Pareto analysis to rank our most troublesome issues and trends. Once the issues were classified, a cause and effect diagram (fish bone diagram) was employed as a root-cause analysis to attempt to determine and classify the reasons for deficiencies. It soon became clear that the former checklist relied more on the effects (food contact surfaces are not clean) than the cause (personnel not trained to properly clean food contact surfaces). Although it was still necessary to have effects listed on the checklist, adding root concerns focused on the system itself. Finally, the scores were eliminated and criticalities assigned to each line item (Minor, Major, Serious, Critical). Inspectors were instructed to check the box if there was sufficient evidence to do so. But then they had few choices of the rating item. This provided a firm guide to industry as to what was most important, and the Program was able to standardize evaluations which made it easier to identify trends. Ultimately, the Program found that such a system actually increased compliance and improved sanitation concerns in the industry.