New Trend Requires Seafood to Travel with a Detailed Log

Since the September 11, 2001 terrorist attack on the United States, concerns about bioterrorism have troubled the American food industry.

The safety of seafood imports and exports are receiving significant attention as new manufacturing guidelines, international standards of commerce and government legislation focus more on traceability, or the capacity to track food through specific stages such as harvesting, processing and distribution.

The international seafood trade has increased dramatically during the last decade, allowing consumers to enjoy many year-round marine commodities that were once only seasonal delicacies. The increased global exposure is due to the ability of businesses to distribute marine commodities around the world, along with advances in food technology and improvements in information technology to track products through the supply chain.

But going global has its price: businesses and governments must balance the benefits of consistent product inventories with the safety of our food. As a result, regulatory and industry leaders responsible for ensuring food safety are also exploring ways to provide more information on the movement of seafood throughout the international supply chain.

In many countries, new food regulation has placed greater responsibility for ensuring seafood safety on individual processors and retailers. Seafood manufacturers have always been able to track the distribution of their seafood just by knowing their suppliers and customers.

But traceability is now viewed essential for protecting not only the safety but also the security of our food supply. The global concern for food security is being addressed by new industry manufacturing guidelines, international standards of commerce and government legislation.

In the United States, the Bioterrorism and Preparedness Act of 2002 required all seafood importers to establish tracking records on all the foreign seafood they brought into this country. All domestic seafood companies were required by law to have registered their manufacturing facilities and products with the U.S. Food & Drug Administration (FDA) by December of last year, even if their products were not sold across state lines. Seafood importers are now required to document not only where they buy commodities but also where they distribute their products.

Records must be maintained from six months to two years depending on a product's shelf life. Legislation on traceability requirements has been passed in Japan, Canada and the European Union. In Europe, the regulation requiring mandatory traceability for all food products became law on January 1 of this year. All food processors, distributors and retailers must now maintain records on their products' origins as well as on where food is sold. The traceability systems now in place are capable of tracking food from the consumer's plate back to the point of harvest.

While the safety and security of the food supply has motivated governments to enact compulsory tracking schemes, markets are also driving the traceability concept. The distribution of food — seafood in particular — has been shifting from a supply system, where processors dictated the availability of certain products to the market, to a demand system where businesses must be more attentive to their customers' changing food preferences.

To better serve consumers and more efficiently manage their inventory, large retail chains, such as Wal-Mart, are employing tracking technology to better monitor the manufacturing history of their goods.

Since the early 1970s, barcodes have been used to identify many consumer products. But the need for more information about the origins of goods, especially food and food ingredients, has driven the development of new kinds of tracking devices, such as Radio Frequency Identification (RFID) devices. RFID instruments consist of antennae and small tags that transmit information about a product without the use of scanners. Multiple RFID devices can be used to send many different kinds of data simultaneously.

Wal-Mart and the western U.S. grocery chain Albertsons are two of many businesses that have begun requiring their suppliers to adopt RFID technology. By January 1, 2006, Wal-Mart will require their 300 largest suppliers to employ RFID technology.

By the end of 2006, all 20,000 of their suppliers will be required to engage in RFID technology. In time, smaller retail chains will likely follow the lead of their larger counterparts and demand their suppliers replace barcodes with RFID tags.

The North Carolina State University Seafood Laboratory and North Carolina Sea Grant are now conducting a case study on the use of traceability systems with two major seafood companies. The information learned from this study may be used to conduct a larger pilot program involving several North Carolina seafood processors.

The goals of the pilot study would be to enhance the security of the seafood harvested within the state, and to help the state's seafood industry adopt new technology that will enable it to remain competitive with businesses in this country and abroad. Arni Petersen, who is based at the Center for Marine Sciences & Technology in Morehead City, NC, is leading the Sea Grant-sponsored research on traceability.

To learn more about traceability or RFID technology in particular, contact Dr. David Green, Director of the Center for Marine Sciences and Technology at 252/222-6304 or dave_green@ncsu.edu.