



Review

Traceability from a US perspective

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Abstract

Traceability of a food consists of development of “an information trail that follows the food product’s physical trail”. Internationally, the US is lagging behind many countries in developing traceability systems for food in general and especially for livestock, poultry and their products. The US food industry is developing, implementing and maintaining traceability systems designed to improve food supply management, facilitate traceback for food safety and quality, and differentiate and market foods with subtle or undetectable quality attributes. Traceability, for livestock, poultry and meat, in its broadest context, can, could, or will eventually be used: (1) to ascertain origin and ownership, and to deter theft and misrepresentation, of animals and meat; (2) for surveillance, control and eradication of foreign animal diseases; (3) for biosecurity protection of the national livestock population; (4) for compliance with requirements of international customers; (5) for compliance with country-of-origin labeling requirements; (6) for improvement of supply-side management, distribution/delivery systems and inventory controls; (7) to facilitate value-based marketing; (8) to facilitate value-added marketing; (9) to isolate the source and extent of quality-control and food-safety problems; and (10) to minimize product recalls and make crisis management protocols more effective. Domestically and internationally, it has now become essential that producers, packers, processors, wholesalers, exporters and retailers assure that livestock, poultry and meat are identified, that record-keeping assures traceability through all or parts of the complete life-cycle, and that, in some cases, the source, the production-practices and/or the process of generating final products, can be verified. At issue, as the US develops traceback capabilities, will be the breadth, depth and precision of its specific traceability systems.

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1. Introduction

Food traceability is in the news; recent news stories have focused on tracking cattle from birth to finished product to control the risk of Mad Cow Disease, on tracking food shipments to reduce the risk of tampering, and on traceability systems to detail country of origin, animal welfare and genetic composition (Golan, Kriss-off, & Kuchler, 2005). Sparks (2002) reported that heightened awareness of food-related safety issues among today's food consumers, coupled with a more educated public, is driving the demand for more information about the vertical food supply chain and specifically, the origin and handling of the basic commodities and food products generated and consumed throughout the world. Recent animal health and foodborne illness scares in all parts of the globe are creating a demand for source verification, food safety and supply chain identification of food products (Sparks, 2002). Golan et al. (2004) concluded that US private-sector food firms are developing, implementing and maintaining substantial traceability systems designed to (a) improve food supply management, (b) facilitate traceback for food safety and quality, and (c) differentiate and market foods with subtle or undetectable quality attributes. Despite that, and even though the US has typically set the operating standard for international food handling, the US food industry may be lagging regarding traceability; there is currently not a standard process that identifies a traceable product, nor is a brand or social equity of a traceable product currently established in many of the end-user markets (Sparks, 2002). Nortje (2002) reported that consumers in Europe, Japan, the US, and elsewhere are concerned about what is happening to their food supply, where is it from, how was it produced and, most importantly of all, is it safe. According to some industry analysts, every company connected with the world's food supply chain will eventually have to embrace traceability or find it difficult to stay in business; the facts are uncompromising, and pressure continues to mount from consumers, the media, retailers and numerous government regulatory agencies (Gledhill, 2002).

2. Traceability in the US food industry

Firms build traceability systems to improve supply-side management and construct lower-cost distribution systems, but simply knowing where a product is in the supply chain does not improve supply management unless the traceability system is paired with a real-time delivery system or some inventory-control system (Golan et al., 2004). An indispensable element of any supply management strategy is the collection of information on each product from production to delivery or point-of-sale; the idea is "to have an information trail that follows the product's physical trail" (Simchi-Levi, Kaminsky, & Simchi-Levi, 2003). Throughout the food industry, companies are adopting new electronic traceability systems ("information trails") to track production, purchases, inventory and sales to provide a basis for good supply management, allowing them to more efficiently manage resources. In 2003, Wal-Mart, the largest volume food retailer in the US and the most notable meat customer to require traceback, served notice that it expected its top 100 suppliers to be shipping goods to it with a new radio-tagging technology [Radio Frequency Identification (RFID)] by January 1, 2005. It appeared in late 2004 that a minority of those suppliers would make the deadline because traceback and tracking are expensive, complicated and difficult to manage (Feder, 2004; Food Production Daily, 2004; Fordice, 2004). However, Neff (2005) reported that (1) they may not have been eager and the technology may still have some kinks, but almost all (98 of 100) of Wal-Mart's top 100 suppliers are participating in the giant retailer's first rollout of RFID in Texas in January 2005. (2) And, while payback for participation may be years ahead, or even never come at all, for many food companies, few if any can afford to ignore RFID. (3) Not only is Wal-Mart testing RFID in the Dallas area, but rivals Target and Albertson's are piggybacking on the Wal-Mart effort by rolling out their own tests there. (4) More broadly, the US Department of Defense, European retailers Tesco and Metro and at least two more major retailers are preparing their own RFID rollouts. Neff

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