Several countries are working hard to become the global halal hub. Halal has traditionally been associated with food products offered to consumers, but now the discussions are about developing a complete halal value chain: “from farm to fork.” The goal is to assure that products are halal by starting at the source of all raw materials. Muslim consumers and the food industry need to be educated about the importance of the halal value chain. The education of those in the food industry is particularly important as these are the people who will make creating a halal value chain possible. At this time, very few universities in Muslim or non-Muslim countries are teaching about halal foods. We need to start raising consumer awareness of the need for greater integrity in halal food production by educating food science and nutrition students about halal food processing and production. There is a need for more halal food research and development (R&D), such as to how to create and use a halal food verification program, and how to use food analysis to solve halal problems (Dali et al., 2007). To achieve these goals, we also need to provide training to halal certification bodies and their auditors, to start formal halal degree programs, particularly at the masters’ and PhD levels, to train people in the food industry about halal food production; to conduct more halal conferences and seminars that reach more people; to publish more peer-reviewed papers on halal issues; and to write more articles and books on the halal food supply chain. Government agencies need to promote halal trade practices and to provide an incentive for engaging in halal trading consistent with a respect for separation of church and state. The community needs halal consumer organizations to represent them with industry and the government, and the industry needs halal trade associations and certifying agencies that assist with global halal commerce.
METHODOLOGY FOR RAISING AWARENESS OF HALAL

Research and training is a vital part of the development of a smoothly functioning, transparent, and effective halal food supply chain. The current R&D framework of most progressive food industries is supported by governmental and private independent research organizations that could be enlisted to help in developing the halal food industry. Specialized, independent halal research and training institutes and/or university-based institutes to support the halal food industries are also required. This will open new opportunities for qualified food technologists, scientists, and researchers to serve the Muslim community.

METHODOLOGY FOR RAISING RELIGIOUS KNOWLEDGE

Halal food production guidelines should only be developed by qualified persons. The qualifications of such persons should include the proper knowledge of Islamic principles and the ability to handle the complex and complicated technical issues. They must also have wide general knowledge about what is happening in the food processing industry. Research on Islamic dietary laws requires that a team of people have a comprehensive understanding of all aspects of food and the many sources and complex production methods using to produce different foods. The research should first be directed toward providing answers to the existing issues affecting the halal supply chain and the development of international halal production guidelines. These guidelines when applied to modern food production and processing and distribution practices will provide a basic framework to ensure the integrity of the halal food industries. The present trend of dealing with each specific matter that arises in a specific situation by having one isolated Muslim religious leader delivering a religious ruling tends to confuse the issue and create further problems for the industry and the consumers. For example, declaring a certain food chain or product to be halal or haram without having a sound detailed knowledge of the entire set of circumstances and a proper understanding of the modern food supply chain is counterproductive to the further development of the halal food industries and also seems to be inconsistent with key principles of Islam.

AWARENESS METHODOLOGY FOR THE HALAL FOOD INDUSTRY

The infrastructure of the typical food production facility in the modern food industry involves using technology, a work force, various raw materials, and a process that meets appropriate quality standards. Industrialization of food production, processing, and distribution was initiated mostly in Western countries and has spread across the world with the development of food technology and the globalization of the food supply chain. The initial industrial standards for food production focused primarily on business needs. Consumer opinions, including ethical norms, were not given equal importance. Modernization of the food and agriculture industries in many Muslim countries was also based on the same industrial standards devoid of ethical and religious values. The transfer of technology without being adapted to local standards and values created complex problems that are now being faced by
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the halal food supply chain internationally. Solutions for many of these problems are not straightforward in part because of the absence of political will and the lack of financial resources in many Muslim countries. Relatively stable Muslim economies such as those of Malaysia, Indonesia, and the Gulf States led by Saudi Arabia are progressively dealing with issues related to the halal food supply chain. Demand for halal foods by significant Muslim minorities in developed Western countries such as the U.S. and the EU have created significant halal markets. Although some regulatory authorities require permits for religious slaughter, most of the halal food supply chain remains unregulated in terms of religious compliance. Private Islamic organizations have made valuable contributions to raising the visibility and integrity of the halal food and supply chains by establishing halal standards supported by the community and by providing credible and relevant certification and monitoring procedures. These worthy efforts may have serious limitations due in part to the lack of proper resources such as professionals with an understanding of both religious and technical issues, financial constraints, and a lack of support by the relevant governmental regulatory authorities. Furthermore, the absence of a unified discussion of halal food industry issues has contributed to variations in the standards for the production, certification, and monitoring of halal foods that may or may not reflect actual Muslim consumer needs. A lack of transparency has meant that a Muslim consumer cannot always determine if a product with a halal claim meets their standard. These problems are a major holdup in the development of an integrated global halal food supply chain, where products from various certifying bodies around the world need to be widely acceptable in various countries and between certifying bodies.

The modern food industry lacks the understanding of the requirements for halal food production. Understanding halal food production is becoming essential for the food industry, especially those exporting to Muslim countries and/or catering to their local Muslim communities. Research and training is vital in the halal food industry and many aspects of halal food production requires innovation, including the development of new halal products by sensitively incorporating the religious and customary habits of Muslim consumers. The availability of training for key workers and managers in all aspects of halal food production would help in developing halal food industries. Qualified training in halal food production would also develop the professional capabilities and increase the employability of these food professional in other parts of the world including Muslim countries.

AWARENESS METHODOLOGY FOR FOOD SCIENTISTS AND TECHNOLOGISTS

Halal food is becoming a global reality and food technologists are generally not being taught in universities about the fundamentals of halal food production. Education in halal foods needs to be introduced in the early stages of a food technologist’s academic program. This will lead to a sustainable development of the halal food supply chain by providing adequately educated professionals who can carry out research and solve technical issues in the halal food industry. Higher education and research in halal food science and technology would provide the skills needed to
obtain technical solutions to the problems that arise and to create innovative products and technologies. The training of food technologists in halal food production and developing qualified scientists acquainted with halal food standards would provide a valuable service for the rapid development of halal food industries. As kosher has also been expanding, there is a need for similar educational efforts in that area at the university level. By working together, the acceptability of such university training might be more acceptable in many countries.

AWARENESS METHODOLOGY FOR THE HALAL CONSUMERS

Research about consumer trends is vital for any successful food product. New halal food products not only require adhering to halal food standards but also to the social and cultural norms of consumers. Taking these considerations into account provides greater assurance for the success of new products in the halal market. Consumers also need to be aware of the nature and quality of food. A lack of proper information and training at the community level creates distrust and may lead consumers and religious leaders to discredit the halal food supply chain. The mass media and the internet could play a positive role in educating the consumer regarding halal food issues (Mohamed et al., 2008). Consumers should also be aware of their right to demand proper halal food from the industry with fraud enforcement from the regulatory authorities, that is, the legitimate role of government—enforcing “truth-in-labeling” and “consumers’ right-to-know.” Consumer training should also be focused on Islamic etiquette with respect to food consumption. Health-related Islamic guidelines and education of Muslim consumers will improve their nutritional and health status.

AWARENESS METHODOLOGY REQUIREMENTS FOR THE HALAL FOOD SUPPLY CHAIN

The future integrity and robustness of the halal food supply chain will depend on research and training. Proper coordination is required between halal food organizations in both the private, and where appropriate, in the governmental sector. This would help to improve technical and management practices and would also provide a platform for the exchange of ideas and experiences (Clifford and Stank, 2005). Research and training in the following areas is required to develop the halal food industry and strengthen the global halal food supply chain:

- Research to identify new halal markets, develop new halal products, and improve the existing halal-certified products.
- Develop laboratory-based research to help and support Islamic scholars. Provide evidence-based information on such controversial issues as slaughter of animals, genetically modified materials (GMO), and other complex technologies used in modern food production.
- Research into natural alternatives that are halal to replace any questionable or haram ingredients used in food processing.
- Develop techniques, tools, and processes to increase through-put in slaughterhouses without compromising the Islamic rules of slaughtering.
• Develop internet portals and dedicated software to improve the visibility and facilitate the growth of the halal food supply chain.
• Professional training of all key persons involved in the food supply chain, including regulatory authorities, to understand and implement halal guidelines and deal with halal issues.
• Research and training to improve the functional capabilities of the food supply chain.

Food scientists and technologists are generally not qualified to make a religious ruling, although they may often be the appropriate people to frame the question and provide important background information. Qualified Islamic scholars require proper education and training about the modern food supply chains to establish fact-based religious rulings.

The modern food industry requires research and basic training in halal food production to be able to successfully and sustainably prepare halal foods for both domestic and export purposes.

Consumer training about the halal status of foods in modern supply chains at the local level would create greater trust and establish better relations with the food industry and the halal certifying authorities.

REFERENCES