

The pressing need for global harmonisation of food regulations

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While the globalisation of world trade has created new pathways to economic growth for many nations, the trend toward a "one-world economy" has also exposed critical differences in international laws and regulations that are designed to protect the world's citizens. Nowhere is this more evident than in the global food supply chain, where gaps in the science used to justify international regulations not only create confusion for food producers trying to achieve compliance, but also create a world of barriers to achieving food security and effective food safety – and the technological advances that could ensure both. The need to harmonise global food regulations and laws has never been greater, considering the following challenges:

- **Food security and nutrition**

Despite the fact that the world as a whole produces enough food for everyone, about half of the food produced does not reach those who need it. As a consequence, today about *one billion people* suffer from hunger. One of the major reasons is that a significant percentage of the food is destroyed during harvesting, transport and storage. Much is spoiled before consumption due to inadequate preservation, but food may also be deemed unfit for consumption – and consequently destroyed unnecessarily – without scientific justification due to inadequate or uninformed laws. In addition, food preserved to prevent microbial spoilage often has a significantly reduced concentration of essential nutrients. This leads to entire populations

suffering from a dangerously reduced resistance to disease, especially affecting children during their growth phase. One way to address this is to promote the development of new technologies that preserve foods from spoilage and simultaneously retain vital nutrients; however, conflicting, non-science-based regulations act as barriers to the creation and adoption of these much-needed technological solutions.

- **Food safety**

Nations enact food safety regulations to protect consumers from food poisoning. This is needed because some unscrupulous producers and tradesmen are more concerned about making a profit than safeguarding consumer health. Regrettably, significant differences in food safety regulations between nations can, and do, result in situations in which a food that is considered safe in one country is considered unfit for consumption in another country. This, in turn, leads to the destruction of imported foods that are safe but that do not meet regulatory requirements, or prevents countries from exporting food to areas where it is needed. Without globally harmonised, science-based regulations, rules intended to protect consumers from foodborne illness or death merely serve to erect trade barriers that inhibit technological advances that ensure public health.



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- **Technology and method development**

New technologies and scientific methodologies may have drawbacks, so there must be proof that such technologies offering beneficial solutions for one problem will not jeopardise other safety aspects. Thus, there is a fair and logical requirement to prove that food produced using a new process is still safe. Defining what constitutes a "safe" process for ensuring food safety is challenging when the laws and regulations of countries differ, because validation must occur in many countries following different protocols, resulting in significant hurdles to new technology application. For example, to protect crops against insects and other pests, producers use traditional prevention and preservation methods to prevent microorganisms from adulterating food. Clearly, traditional methods work but they do have drawbacks, such as potentially toxic residues, destruction of nutrients, and dramatic losses to crushing or foraging animals. All over the world scientists and engineers are developing methods that minimise, or even eliminate, such drawbacks. Results include more insect-resistant crop varieties, packaging that effectively protects against mechanical damage and pest infestation, and preservation methods that need neither heat nor chemicals to stop microbes from doing harm and help retain more of the food's essential nutrients. However, without agreement between countries about the validity of these technological approaches, neither food producers nor consumers will benefit from the increased food safety and nutritional benefits they can provide.

Testing protocols used to establish the safety of the food itself or to validate a preservation process' safety also require harmonisation. A case in point is the prescribed testing protocols involving the use of animals, which not only poses serious ethical objections but, for processed food to cross borders, meeting legal requirements can be difficult, costly and time-consuming. There is increasing evidence that the results of animal testing to determine toxicity of foods, cosmetics and pharmaceuticals have little or no relevance to humans or human health outcomes. In fact, easy-to-apply alternative methods have been developed. Although these animal-free methods have been shown to return a faster, more accurate speed-to-result, expected financial benefits of their use cannot be realised if the protocols for product safety testing are not globally harmonised.

The Global Harmonization Initiative

In 2004, members of the International Division of the Institute of Food Technologists (IFT) and representatives of the European Federation of Food Science and Technology (EFFoST), the European section of the International Union of Food Science and Technology (IUFoST), were motivated to contribute to the harmonisation of food safety regulations, globally. This resulted in the formation of the Global Harmonization Initiative (GHI) in 2007. Shortly after establishing GHI, many scientific organisations joined the effort, which now boasts a growing, truly global membership dedicated to achieving consensus on the science of food regulations and legislation to ensure the

global availability of safe and wholesome food products for all consumers.

From its inception, GHI's strategy has been to provide a networking forum in which food scientists could practice science. Its goal is to foster global scientific consensus on issues for which globally equal regulations will help strengthen global food safety and alleviate global hunger and nutrition problems. By producing independent, authoritative information based on scientific consensus, GHI hopes to inform the world's regulators and lawmakers so that regulations are based on sound science and not reactionary conclusions after food safety failures. Stakeholders may use GHI's objective consensus documents to convince their governments that harmonisation of food regulations is possible.

GHI's intention is to involve scientists from all countries and, to achieve this, there is no membership fee.

To make colleagues aware of the initiative, GHI has held workshops, courses and meetings in many countries which led to the formation of working groups (WGs), focussing on a variety of topics, including *Listeria monocytogenes* in ready-to-eat food, nanotechnology application, high-pressure sterilisation, and the toxicity of food ingredients. Each WG's task is to develop a concept document for discussion by experts worldwide, followed by global distribution to food scientists, technologists and engineers, with the goal of reaching a significant global consensus on the science involved in the specific area of interest. ■

The Cape Town link

During the 15th Annual IUFoST World Congress of Food Science and Technology in Cape Town in 2010, GHI had a heavy presence with a symposium and workshops.

Find the GHI website at www.globalharmonization.net.
To sign up as a member, go to www.globalharmonization.net/user/register.

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Ed's note: Huib Lelieveld edited and Lucia Anelich contributed to one of the books in this month's On the Bookshelf, entitled Ensuring Global Food Safety. Read about it on page 49.