By **Huub Lelieveld** and **Larry Keener**, co-chairs, Global Harmonization Initiative (GHI) Working Group

It is generally assumed around the world that food is safe. Food must be safe for its intended use for human consumption, but food safety and regulatory measures should not unnecessarily hamper the availability of human food.

Regrettably, however, due to unintentional or sometimes intentional legislative or regulatory measures the availability, globally, of safe food is frequently curtailed. Yet, this situation can exist as results of differences in food safety regulations and related legislative measures between nations. Hardly anyone is to blame, as food regulations have a very long history of having been drawn up as a response to food safety incidents. For example, the Pure Food and the Meat Inspection Acts in the US were the direct response by the US government to food safety failures or concerns about the integrity of the country's food supply.

BREAKING DOWN BARRIERS

The goal of the Global Harmonisation Initiative is to ensure the global availability of safe and wholesome food products for all consumers.

To achieve this, undue barriers to free trade that masquerade as food safety protections must be vanquished. Such barriers include differences in regulations and legislation between countries globally. The international scientific community must, therefore, work towards achieving global consensus on the science underpinning food regulations and legislation. This will be achieved through attainment of the following objectives:

1. Identifying relevant scientific organisations.

2. Inviting and encouraging the participation of these scientific societies in the global harmonisation initiative and inviting their members to join in this activity in their field of expertise.

3. Identifying relevant non-scientific stakeholders.

4. Establishing effective communication between non-scientific and scientific organisations.

5. Inviting all stakeholders (organisations and individuals) to identify and submit key issues requiring attention.

6. Prioritising key issues with the subsequent formation of working groups to draft white papers or consensus statements regarding the scientific validity of these issues.

7. Steering working groups to assess the best available evidence and discuss their findings with the scientific community, working towards building consensus.

8. Publishing results on a per issue basis in journals, magazines and newspapers.

9. Publishing collections of resulting consensus statements in book form.

10. Presenting results and participating in appropriate conferences.

11. Making results available to all stakeholders, particularly those responsible for developing or amending regulations and legislation, global communicators, risk managers and assessors.

All of these will be done in an open, transparent manner, to avoid bias or the appearance of bias, political or otherwise.

Moreover, and perhaps more perplexing, these developments occurred in a time when food analyse were less sensitive and accurate as they are with today's methods. Zero, for example, in 1954 for a pesticide residue or hormone residue is not the same as zero today. Here then is the essence of most conflicts: in those times, it was usually accepted that the food product should not contain substances that may have an adverse effect on health, e.g. because of toxicity or the presence of pathogenic microbes. Consequently, progress in analytical science has decided what concentrations of what substance are accepted, viz. the detection level. Historically, our abilities in detection tend to trend downward with improvement in methods and hence with time. Food safety regulations promulgated and passed based solely on a method's capability have resulted in the careless application of such regulations to the detriment of commerce and the consuming public. It has been known for 500 years that toxicity is a matter of concentration. Many compounds are essential for good health in certain concentrations while toxic in a higher concentration ("All substances are poisons: there is none which is not a poison. The right dose differentiates a poison and a remedy." Paracelsus, 1493-1541).

Consumers increasingly prefer food without chemical preservatives, even if these preservatives have a long-time proven safety record. This is a modern reality. The traditional alternative to chemical preservation is heat processing. The adverse effects of heat on nutrients are well known: many vitamins and anti-oxidants are degraded by heat. Heat, moreover, has an effect on flavour and taste; sometimes desirable but often not. While in some cases a heat treatment may be needed to destroy toxic components, in other cases heat may produce toxic substances in the heated substrate; for example, the formation of acrylamides in foods where polysaccharides are heated in the presence of asparagine.

Much research has been done to meet consumer demands for safe, fresh, minimally processed foods, and with some modicum of success. Novel technologies that exert little or no effect on the nutrient content of foods have been developed and there are even more in the pipeline. Differences in regulations between countries related to food safety provide expensive scaffolding, which often hampers the introduction of novel ways of food processing and preservation.

The outcomes of food scientists' attempts to meet consumer demands for healthier food are frequently thwarted or frustrated because of differences in scientific methods, economic expediencies, political necessity or public health demands. Because most people are not scientists, from an electoral point of view it's easier to listen to the *vox populi*. One of the manifestations or consequences of this reality is adoption of the precautionary principle within the EU. In short, this principle requires the provision of objective scientific data for purposes of demonstrating food safety where the public health status

of a substance has been called into question; whether or not there is a long history of the substance's safe use as food.

It is not the intention of GHI to advocate carelessness or poor science in risk assessment. To the contrary, it is our position that any and all potential adverse effects that may have resulted from a new process should be subjected to the most careful scientific scrutiny. It is our view, however, that it is a waste of time and resources to require approval in several countries, each demanding similar data produced by different protocols. What is needed are globally agreed protocols and a system to ensure that those protocols are followed accurately. Once checked and perhaps double-checked, the results should apply universally. Organisations or individuals, despite proven safety, who make statements calling into question the safety of a process, should be required to provide a sound scientific basis for their objection or in support of their position.

Similar questions and issues relating to food production and food safety are frequently raised about every aspect of the supply chain, from farming to retail. For instance, does the use of hormones and antibiotics affect the safety of the meat? When is food kosher? Are all spices safe? Are microorganisms used to ferment food always safe? Pesticides may be essential to be able to produce enough food, when are they safe and when harmful? Microbicides (fungicides, bactericides), which are more harmful, microbicides or microbes? Pesticides or pests? On another front: what are food additives and what are processing aids? Regrettably, at this moment in time, it depends on where you live. In short, the question is… "what is the balance between benefit and safety risk?"

In 2004 the International Division of IFT and the European Federation of Food Science and Technology (EFFoST), in cooperation with *Food Safety* Magazine and Elsevier Science launched a Global Harmonisation Initiative (GHI) to try to eliminate differences in regulations and legislation. Soon after this event, many other organisations have joined, including the International Union of Food Science and Technology (IUFoST), the Federation of European Microbiological Societies (FEMS), the Food Chemistry Division of the European Association for Chemical and Molecular Sciences (EuCheMS) and the European Hygienic Engineering and Design Group (EHEDG).

Publication of the results of the GHI will make it more difficult to abuse science. By obtaining global scientific consensus on food related issues, it will be hard for antis to find scientists who are willing to support unjustified statements. It will also be hard to counter requests to governments for change in regulations if they are not based on sound scientific data. Decisions should be based on agreed risk/benefit analyses.

Our intention is not to promote a 'no' or 'yes' for particular cases, but to carefully review available evidence to see whether or not a consensus statement on safety can be made. There may be issues where the 'yes' or 'no' depend on circumstances, e.g. the method of use or the use by certain populations. For instance, lactose is a natural constituent of bovine milk. While for some populations lactose is a harmless energy source, for other populations it is a toxic substance. Likewise, peanuts are a staple in the diets of billions of people around the world, whereas for thousands of others they are a constant threat of anaphylaxis. In other cases there may be lack of evidence either way. In such cases, research to obtain such evidence shall be proposed.

It is realised that many organisations attempt to harmonise regulations and standards to which legislation refers. These organisations include Codex Alimentarius (a joint United Nations and World Health Organisation commission), the World Trade Organisation (WTO), standardisation organisations such as ISO and organisations such as the European Food Safety Authority (EFSA). By far, not all nations participate in these organisations and some may be politically biased or perceived to be biased. Rather than duplicating the work of these organisations, the GHI will use their results and resources to investigate whether global scientific consensus of these results can be obtained.

Meanwhile, there have been a number of GHI events and there are several planned for the near future. One of the results is the draft Charter, explaining what GHI intends to realise. It is a draft because, in line with the GHI philosophy, scientists from all over the world should have a chance to provide input. GHI should start with consensus on the Charter. ■

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For more information on the GHI visit **www.globalharmonization.org** where information can be found on how to join.