International food trade: food quality and safety considerations

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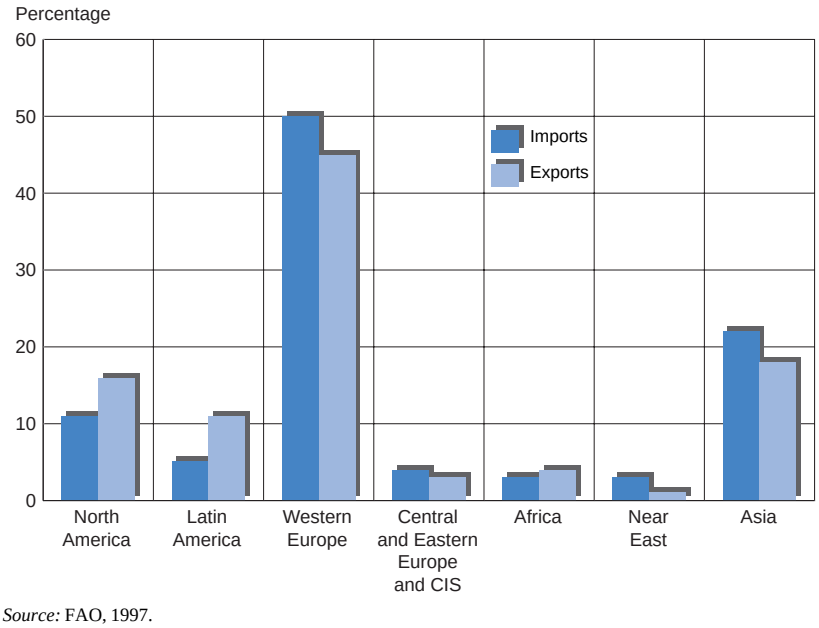
The global trade of food is a diverse and complex operation and one in which most countries strive to take part. Governments recognize that a strong national food industry is an important supplier of food to the population and a significant contributor to food security. They also view food exports as an important source of foreign exchange. The expansion and diversification of the food trade can be attributed to many factors. First, the disciplines of food microbiology, food chemistry and food technology are continuously providing a broader range of foods by developing new and more sophisticated preservation, processing and packaging techniques which make foods safer, less perishable and more attractive to the consumer. Second, rapid transport and improved handling methods have reduced the length of time and difficulties associated with moving food long distances, thus allowing traders access to new and far-away markets. Third, consumers' tastes and food habits have become more varied and their incomes and purchasing power have risen, stimulating the demand for traditional and new foods from other regions.

Whether a country is a net food importer or exporter may be determined by factors such as local conditions for agricultural production and food manufacturing, costs and demands for domestic or foreign food products and economic activities which provide other sources of income. An increasing number of countries are becoming both significant importers and exporters of food. It is customary for countries that are self-sufficient in food or have an excess of food to also import some food products. At the same time, countries that are not self-sufficient in food may export some of their products, especially when these foods are much sought after elsewhere and bring premium prices.

The value of the international food trade recently exceeded US$380 000 million per year (FAO, 1997). In 1994, Europe played a predominant role in the food trade, accounting for almost 50 percent of all imports and 45 percent of all exports. At that time Asia was the second most important contributor to international trade, with 22 percent of food imports and 18 percent of food exports. Countries in Latin America and the Caribbean had gained a significant market share, while Africa and the countries of Central and Eastern Europe and the Commonwealth of Independent States (CIS) held a small share of the international market (see Figure).

Despite the imbalance in favour of the developed countries



World trade of food products by region, 1994

Source: FAO, 1997.

in the share of international trade, developing countries have been gaining a stronger foothold in global markets. Between 1980 and 1994, the contribution of the food sector of developing countries to the overall world value increased by 3.5 percent, while that of the European Union increased by 4.3 percent and that of North America by only 2.4 percent (UNIDO, 1997).

REGULATORY CONTROL

As the state of the food industry and food production has changed, so too have the general environment in which food is traded and the rules that are applied. International trading in food formerly took place with little, if any, government intervention, and it was accepted that the food producers set their own standards and determined the quality of food products offered to consumers. Many traders were reputable and responsible and took great care to protect the health of consumers. However, some dishonest food traders found that the unregulated markets gave them an excellent opportunity to exploit consumers through unfair trade practices associated with pricing, misrepresentation of products and misleading labelling. Such abuses led to government involvement and, over time, the enactment of food laws and regulations and the establishment of food control agencies to ensure that all domestically produced food, imported food and exported food complied with the appropriate laws. These laws, regulations and agencies comprise the food control system which today provides essential support to the food industry and exporters. With the increasing volume of trade among countries, difficulties arising from the independent establishment of laws and standards in different countries are becoming evident.

HARMONIZATION OF FOOD STANDARDS

Variations in the procedures of national food control systems involving monitoring and sampling, detection and analytical methods, application of standards and food safety requirements can give rise to trade restrictions. On some occasions countries have developed standards that were not based on science and in effect were nothing more than non-tariff barriers to trade. It has become obvious that there is a need to harmonize food requirements globally and there is a growing need for international guidelines and rules. These guidelines and rules are now provided within the framework of the recently established World Trade Organization (WTO). The Uruguay Round trade agreements take the approach of adopting international standards and codes of practice; this approach can be expected to decrease the variation in requirements imposed in the past by different countries.

The main instrument to assist countries in the harmonization of food standards is the Codex Alimentarius, a collection of internationally adopted food standards, maximum residue limits for pesticides and residues of veterinary drugs and codes of practice. The Codex Alimentarius Commission is cited as the reference point for standards relevant to food quality and safety in the Agreement on the Application of Sanitary and Phytosanitary Measures and the Agreement on Technical Barriers to Trade, discussed later in this article. The objectives of the Codex programme are to protect the health of consumers, to ensure fair practices in the food trade and to promote the coordination of all food standards work undertaken by national governments.

As part of the harmonization process each government must ensure that the legislation underlying its country's food control system is scientifically based and must work to establish equivalency and transparency among national food control systems. The use of international standards also allows countries to prioritize the use of their often limited resources and to concentrate on risk analysis and scientific investigations which may be specific to their own countries.

OPPORTUNITIES AND CHALLENGES

Decisions on multilateral trade have led to significant changes in the global exchange of both merchandise and services. While the continuing trend towards trade liberalization gives food producers increased access to international markets, it also presents new challenges in terms of ensuring the quality and safety of domestic and exported food supplies. As the volume of food traded increases, there is greater potential for exposing consumers in one country to the problems that can occur in another country. Although technological advancements make it possible to ship products from one side of the world to the other within a few days, abuse of a good-quality food before, during or after transportation and storage may render it spoiled or unsafe by the time it reaches the consumer. Exporting countries will need to meet the requirements of their trading partners and to comply with import rules and procedures.

Uruguay Round trade agreements

The Uruguay Round trade negotiations were concluded in 1994 and led to the establishment of the World Trade Organization in 1995. WTO and the associated agreements provide a basis of facilitating international trade and intergovernmental trade arrangements. During the Uruguay Round, agriculture was included in trade talks in a significant way for the first time. These trade talks led to two binding agreements relevant to food regulations: the Agreement on the Application of Sanitary and Phytosanitary

Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). The SPS and TBT agreements set important parameters governing the adoption and implementation of food quality and safety measures. They are designed to minimize the discriminatory and adverse effects of food regulations.

The SPS Agreement calls for a programme of harmonization of national requirements based on international standards. With regard to food safety measures, WTO members should base their national standards on international standards, guidelines and other recommendations adopted by the Codex Alimentarius Commission where they exist.

The objective of the TBT Agreement is to prevent the unjustified use of national or regional technical requirements, or standards in general, as technical barriers to trade. The TBT covers all types of standards including those related to food such as standards of quality, nutritional requirements, labelling and methods of analysis. It includes measures designed to protect the consumer against deception and economic fraud.

When a dispute occurs between two countries WTO encourages them to find a mutually acceptable solution. If this is not possible there are several optional dispute procedures, including good offices, conciliation, mediation and arbitration. Alternatively, an impartial panel of experts may be convened to hear all sides of the dispute and make recommendations. If the panel concludes that a country is violating its obligations under either of the Uruguay Round agreements, it will normally recommend that the country take such action as necessary to bring its offending measures into conformity with its obligations under the agreement.

National food control systems

Success of food trade at the international level depends greatly on the structure and degree of control at the national level and the compliance with the agreements mentioned above. While the onus is on the food industry to produce safe and high-quality products, the government has a responsibility to provide a national food control system with a supporting infrastructure, to assume an advisory and regulatory role and, when necessary, to enforce food laws. The government's food control agencies need to assure consumers that they have set and will enforce standards for the quality and safety of foods. These agencies need to work with food producers in a cooperative and collaborative manner to ensure the quality and safety of exports through appropriate inspection, testing and certification methods.

A major challenge, in addition to that of ensuring that food is produced in a controlled environment, is that of demonstrating that the control measures implemented are effective. Trading partners often request assurance that the industry has implemented appropriate control measures to provide a guarantee of the quality and safety of the food. To provide this regulatory assurance the national food control systems should be based on a statutory framework supported by administrative offices, inspectors and analysts with adequate laboratories and other facilities needed for effective administration of the laws and regulations. Control measures should be in place to control food safety problems related to pesticide residues, heavy metals, industrial chemicals, radionuclides, mycotoxins and new challenges as they arise.

In essence the national food control system supports trade by playing a dual role, providing adequate support to the food producer or exporter and assuring the consumer of the quality and safety of imported food products.

Import control

Control of food imports is essential to ensure a safe food supply and to prevent the "dumping" of lesser-quality food. The development of an effective food control system to monitor food imports should be ongoing and should include record-keeping of detained food products, suppliers, etc. to allow adequate follow-up action where food consignments contravene the national food import law.

The importance of a strong food import control system is supported by data on import detentions and rejections. The United States Food and Drug Administration (USFDA) provides detailed monthly reports on detentions of food imported into the United States and makes this information accessible through the Internet (see Table). The Table summarizes data covering the periods July to December 1996 and January to June 1997. The most prevalent reason for rejection of food products during both periods was contamination with filth from insects, rodents or birds, indicating poor levels of hygienic practices in food processing and handling. Following this, the main reasons for import detentions included microbiological contamination, contravention of low-acid canned food procedures, violation of labelling rules, excess levels of pesticide residues and decomposition. The United States uses a risk-based system with automatic detention when a problem has been highlighted in a particular food consignment. It is only when the food safety issue has been resolved that the border will be opened to detained food consignments once again.

Export control

The responsibility for ensuring the quality and safety of food exports and for preventing food consignments from being

United States Food and Drug Administration (USFDA) detentions from Africa, Latin America and the Caribbean, Europe and Asia

Reason for detention	Number of detentions, July-December 1996	Number of detentions, January-June 1997
Food additives	215	339
Pesticide residues	589	364
Heavy metals	244	249
Mould	313	313
Microbiological contamination	890	585
Decomposition	480	412
Filth	1 932	1 688
Low-acid canned food	776	647
Labelling	611	524
Other	180	147
Total number of reasons (contraventions cited) for detentions	6 210	5 268
Number of consignments detained	5 701	4 795

Source: Internet site of USFDA, Center for Food Safety and Applied Nutrition, Import Awareness Programme (http://www.fda.gov/ora/ids/ora_ids_access.html).

detained or rejected at the point of import lies mainly with the food producer and regulatory authority in the exporting country. A safe and good-quality product should be the result of adequate control at all stages of the food chain rather than corrective action taken late in the process.

Good agricultural practices and good food hygiene and manufacturing practices to control decomposition and insect and rodent depredation and to assure proper use of production inputs such as fertilizers, pesticides and animal drugs should be applied at all times. Control over choice of seed and application of fertilizers and pesticides, control of weeds, pests and diseases and sorting and cleaning can improve the quality of the product. This integration of production and processing allows for closer control over the quality of the raw materials and safe handling of the product. If the processing facility is located near the source of raw materials, producers are able to have greater control over all stages of food production including primary production. Clearly, quality control, including good storage and transportation practices, good manufacturing practices and hygiene controls, must continue through production, storage, transportation, processing, packaging and labelling, handling and preparation of food. To enhance the effectiveness of these practices the development of quality assurance and risk-based hygiene control systems is an important step forward. Quality assurance systems such as the Hazard Analysis Critical Control Point (HACCP) system will encourage the food industry and government alike to control food production by concentrating on the critical factors to ensure food quality and safety.

These practices can assist food processors in meeting consumer demands for high-quality and safe foods. The change in emphasis from end-product testing (i.e. quality control procedures such as sampling and analysis of the final product) to the application of quality assurance during production, processing, packaging and distribution is broadly accepted as beneficial to the food industry. Measures can be applied with more cost-effectiveness and usually with greater certainty of achieving the desired result. These measures lead to improved competitiveness, better quality, reduced costs of production, less wastage and greater satisfaction of consumers. Furthermore, the implementation of quality assurance systems such as HACCP is gaining increasing importance as many countries are now making it a legal requirement for imported foods.

CONCLUSION

The international trade of food is growing as countries rely on each other to secure an adequate and varied food supply through the import and export of food products. The opportunities for more growth are encouraged through free international trade on the basis of the Uruguay Round agreements and the establishment of WTO. Countries will have improved access to export markets, but this improved access will be accompanied by greater competition and the need to ensure confidence in the safety of the food supply. This is particularly challenging to developing countries, where quality assurance systems in the food industry and food control systems should be strengthened. Much therefore needs to be done so that all countries can take full advantage of new possibilities for free international trade and so that the comparative advantages in each country can be exploited to produce various food products in a cost-effective way with attention to improved food quality and safety.

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Summary/Résumé/Resumen

International food trade: food quality and safety considerations

The international trade of food is growing as countries rely on each other to secure an adequate and varied food supply. More countries are becoming both significant importers and exporters of food. Countries that are self-sufficient in food or have an excess of food also import some food products. Countries that are not self-sufficient in food may export some food products, especially when these foods command premium prices.

The expansion and diversification of the global food trade can be attributed to innovations in food preservation, processing and packaging techniques which make foods safer, less perishable and more attractive to consumers; rapid transport and improved handling methods which reduce the length of time and difficulties of moving food long distances; and changing tastes and increased purchasing power which stimulate consumer demand for traditional and new foods from other regions. By the mid-1990s, the value of the international food trade exceeded US$380 000 million per year.

Trade liberalization presents new challenges in terms of ensuring the quality and safety of domestic and exported food supplies. While the onus is on the food industry to produce food exports that are safe and of high quality, governments are responsible for providing a national food control system to assume an advisory and regulatory role. Food control agencies need to ensure consumers that food imports will meet food standards. As the volume of trade increases, difficulties arise because each country has established laws and standards independently. There is a need to harmonize food requirements globally and to set international guidelines and rules. The main instrument to assist countries in the harmonization of food standards is the Codex Alimentarius. The World Trade Organization's Agreement on the Application of Sanitary and Phytosanitary Measures and Agreement on Technical Barriers to Trade set important parameters governing the adoption and implementation of food quality and safety measures. They are designed to minimize discriminatory and adverse effects of food regulations. While improved access to export markets brings new opportunities, increased trade will be accompanied by greater competition and the need to ensure confidence in the food supply. This is particularly challenging to developing countries where quality assurance systems in the food industry and food control systems should be strengthened. Much needs to be done so that all countries can take full advantage of new possibilities for free international trade.

Le commerce international des produits alimentaires: la qualité et l'innocuité des aliments

Les échanges internationaux de vivres se développent, du fait que les pays ont besoin les uns des autres pour assurer un approvisionnement adéquat et varié. Le nombre de pays qui sont à la fois des importateurs et des exportateurs importants de produits alimentaires est en augmentation. Les pays autosuffisants sur le plan alimentaire ou dont la production est excédentaire importent aussi quelques denrées. Les pays ne produisant pas suffisamment pour leur consommation peuvent exporter quelques produits alimentaires, surtout s'ils peuvent en tirer un meilleur prix.

L'expansion et la diversification des échanges alimentaires mondiaux peuvent être attribuées à plusieurs facteurs: innovations des techniques de conservation, de transformation et de conditionnement qui rendent les aliments plus sûrs, moins périssables et plus attrayants pour les consommateurs; rapidité des transports et méthodes de manutention améliorées qui réduisent la durée et les problèmes des transports sur de longues distances; et l'évolution des goûts des consommateurs et l'augmentation du pouvoir d'achat qui stimulent la demande d'aliments traditionnels et nouveaux provenant d'autres régions. Au milieu des années 90, les échanges internationaux de vivres se chiffraient à plus de 380 milliards de dollars EU par an.

La libéralisation des échanges s'accompagne de nouveaux problèmes en ce qui concerne l'assurance de la qualité et de l'innocuité des disponibilités alimentaires intérieures et exportées. Il appartient aux industriels de produire des aliments exportables sains et de bonne qualité, mais le gouvernement doit mettre à leur disposition un système national de contrôle des aliments qui aura une fonction consultative et normative. Les organismes de contrôle doivent garantir aux consommateurs que les denrées importées sont conformes aux normes alimentaires. A mesure que le volume des échanges augmente, des difficultés apparaissent car chaque pays a établi des lois et des normes qui lui sont propres. Il est indispensable

d'harmoniser les dispositions alimentaires au plan international, et de définir des directives et des règles internationales. Le principal instrument pour aider les pays à harmoniser les normes alimentaires est le Codex Alimentarius. L'Accord de l'Organisation mondiale du commerce sur l'application des mesures sanitaires et phytosanitaires et l'Accord relatif aux obstacles techniques au commerce établissent d'importants paramètres régissant l'adoption et l'application des mesures destinées à garantir la qualité et l'innocuité des aliments. Le but est de minimiser les effets discriminatoires et négatifs des réglementations alimentaires. L'amélioration de l'accès aux marchés d'exportation offre de nouvelles possibilités mais, avec l'augmentation des échanges, la concurrence s'intensifiera et il faudra instaurer la confiance dans les aliments offerts sur le marché. Cela sera particulièrement problématique dans les pays en développement où les services d'assurance-qualité, dans le secteur de l'industrie alimentaire, et les systèmes de contrôle des aliments doivent être renforcés. Il reste encore beaucoup à faire pour que tous les pays puissent tirer profit des nouvelles possibilités de libre-échange international.

El comercio alimentario internacional: consideraciones relativas a la calidad e inocuidad de los alimentos

El comercio internacional de alimentos crece cuando los países dependen unos de otros para conseguir un suministro suficiente y variado de alimentos. Cada vez es mayor el número de países que importan y exportan grandes cantidades de alimentos. Países que son autosuficientes en alimentos o tienen excedentes alimentarios importan sin embargo algunos productos alimenticios. También es posible que países que no son autosuficientes en alimentos exporten algunos productos alimenticios, especialmente si se paga por ellos un sobreprecio.

La expansión y diversificación del comercio mundial de alimentos puede atribuirse a las innovaciones en las técnicas de conservación, elaboración y envasado de alimentos que hacen que éstos sean más inocuos, menos perecederos y más atractivos para los consumidores; a un transporte rápido y métodos mejorados de manipulación que reducen la duración y las dificultades del desplazamiento de alimentos a larga distancia; a cambios en los gustos y al aumento del poder adquisitivo que estimulan la demanda de alimentos tradicionales y nuevos de otras regiones. A mediados del decenio de 1990, el valor del comercio internacional de alimentos excedía de 380 000 millones de dólares al año.

La liberalización del comercio plantea nuevos desafíos en lo que se refiere a la garantía de la calidad e inocuidad de los suministros de alimentos internos y exportados. Aunque corresponde a la industria alimentaria exportar alimentos que sean inocuos y de alta calidad, es cometido del gobierno proporcionar un sistema nacional de control de los alimentos que desempeñe una función de asesoramiento y reglamentación. Los organismos encargados del control de los alimentos han de asegurar a los consumidores que los alimentos importados se ajusten a las normas alimentarias. A medida que aumenta el volumen del comercio, las dificultades crecen porque cada país ha establecido sus leyes y normas de manera independiente. Es necesario armonizar los requisitos alimentarios a nivel mundial y fijar directrices y reglas internacionales. El principal instrumento para ayudar a los países a armonizar sus normas alimentarias es el Codex Alimentarius. Los acuerdos de la Organización Mundial del Comercio sobre la Aplicación de Medidas Sanitarias y Fitosanitarias y sobre Obstáculos Técnicos al Comercio establecen los principales parámetros que han de guiar la adopción y aplicación de medidas en materia de calidad e inocuidad de los alimentos, con objeto de reducir al mínimo los efectos discriminatorios y adversos de las reglamentaciones alimentarias. Si bien la mejora del acceso a los mercados de exportación ofrece nuevas oportunidades, el aumento del comercio irá acompañado de una mayor competencia, así como de la necesidad de asegurar la confianza en los alimentos que se suministran. Esto plantea un problema arduo a los países en desarrollo, en los que deberán reforzarse los sistemas de garantía de la calidad en la industria alimentaria y los sistemas de control de los alimentos. Queda mucho por hacer para que todos los países puedan aprovechar plenamente las nuevas posibilidades que brinda el libre comercio internacional. ♦