

There are 1,228,342 small farmers (less than 5 hectares) in Peru. In terms of livestock holdings, there are 846,829 bovine cattle farms, 648,460 hog farms, 477,926 chicken farms, and 209,692 goat farms.

There are 1,097 retailers and 3,752 food industries in Peru. In Lima, the capital of country, there are 549 retailers, 44 fish markets and 7,639 restaurants.

The marketing of fresh food is fundamentally by two wholesale markets. The first wholesale market is dedicated to the commerce of vegetables, tubers, roots, and grains. It has an area of 35,942 m², with 24 pavilions and 744 stands for specialized wholesalers that manage 80 TM annually. The second wholesale is dedicated exclusively to the commerce of fruits, with an area of 27,485 m² and 741 stands. The wholesalers carry a diversity of fruits, according to the season, and manage a volume of 50 TM annually. In both cases, the infrastructure is insufficient, because the recommended volume is limited to 35 m²/year.

Why food safety is a concern

Food security is a preoccupation because of the country's population increase, an unfavorable agricultural trade balance, the use of modern technologies for processing, packing, and distributing foods, the opening of supermarkets in Lima and provinces, and the transport advances that allow delivery in terms of days or hours to very distant places. All of these factors have influenced the revision of Peru's policies related to food protection and the prevention of the diseases transmitted by food.

The diffusion and fulfillment of regulations on food security are in an early, developmental stage. There has been some progress only among industries that export food. Approximately 80 companies have initiated the HACCP system, but no systems have been implemented in retail food stores.

Diseases produced by food.

According statistics from Ministry of Health, in the last 4 years, there were 2,899 reported cases of disease transmitted by food, 47 of them fatal. It is estimated that at least the same number of cases go unreported.

The foods involved in most of the cases are those related to programs of food aid (programs such as "Popular Dining Rooms" and "School Breakfasts"), also those prepared in popular social meetings, whose raw materials are acquired from street vendors that lack refrigeration and thus are probably exposed to pathogenic polluting agents. Clandestine liquors, with methylic alcohol, are also risky for the consumer health.

In relation to the involved etiologic agents in disease transmitted by food in 2001, Salmonellosis represented more than 65 percent, being the *Salmonella typhi* cause of 18 percent. Also, *Staphylococci* poisoning represented over 28 percent of cases. On the other hand,

cholera only represented 0.20 percent of the total of cases in 2001. There is a direct relationship between the presence of *Salmonella* and foods prepared with chicken and mayonnaise. Also different preparations with meat like guinea pig, barbecue and stews, insufficiently cooked, allow the survival of pathogenic agents.

Regarding points of origin of disease transmitted by food, the home represented 45 percent, followed by the schools at 24 percent and popular celebrations at 11 percent, which indicates the importance of integrating consumer participation (students and housewives) into sanitary monitoring programs.

It is necessary to have a monitoring system that is carefully designed and suitable for achieving efficient and effective sanitary food control, with homogenous capacities at the national level to enable fast responses for intervening in order to prevent disease, plan actions, and control illness. This constitutes a priority for the Executive Direction of Food Hygiene and Control on the Zoonosis of DIGESA (for initials in Spanish—the General Direction of Environmental Health, of Health Ministry).

In this context, one of the great challenges for DIGESA is to improve the conditions of hygiene and the practices of manipulation and processing of foods and drinks throughout the food distribution chain as well as in homes and schools.

The adoption of a food safety system

In Peru, HACCP and ISO9000 are the systems that have mainly been adopted. In the fishing sector, there are 147 qualified factories, mainly involved with exports; 40 HACCP plans are being evaluated. In the agro-industrial sector, there are 19 processors of asparagus for export with HACCP systems. In food industries for internal consumption, there are by 80 companies with HACCP systems.

No security systems have been implemented in the retail food establishments. Although the law establishes that this matter is the concern of the municipalities, it has not been managed, and implementation is lacking. Food security systems have generally been adopted at the initiative of the industries themselves in coordination with governmental organizations such as DIGESA, as well as consumer organizations.

Incentives, accountability, and oversight authority, along with method of delivery and legal liability issues

The Supreme Decree No. 007-98 approves the regulation on Monitoring and Sanitary Control of Foods and Drinks, which establishes the general norms of hygiene as well as the sanitary conditions and requirements for production, transport, manufacture, storage, and processing and selling of foods and drinks for human consumption with the purpose of guaranteeing its safety, and set-

ting out the conditions, requirements, and procedures to the inscription, modification, suspension, and cancellation of the Sanitary Registry of Foods and Drinks.

Any people who participate or take part in any one of the processes or operations that involve the activities and services related to the production and circulation of food are understood within the reaches of the regulation.

The law says also that all food and drink, or raw materials destined for processing, will have to respond in their organoleptics character, chemical composition, and microbiological conditions to the standards established in the corresponding sanitary norm.

The Ministry of Agriculture oversees and monitors the sanitary breeding of animals destined for human consumption, the health of animals for milk production, meat, and eggs, as well as the sanitary production of vegetables for human consumption.

Monitoring of the sanitary capture, extraction or harvesting, and transport and processing of hydro-biological products as well as the hygienic conditions of the landing points of these products is the responsibility of the Ministry of Fisheries.

The sanitary monitoring of the storage establishments of foods and drinks is the responsibility the Ministry of Health.

The sanitary monitoring of the transport of foods and drinks, as well as the monitoring of the establishments of commercialization, elaboration, and retail sale of foods and drinks is the responsibility of the municipalities.

The monitoring of the sanitary quality and safety of foods and drinks subject to the Sanitary Registry is the responsibility of the Ministry of Health. Also there are consumer organizations that coordinate with the government.

The food security system in Peru is a hybrid because it is the result of government, industry, and consumer representatives. These organizations formulate the regulation, but its application is arranged. At the present time, the culture of the careful buyer has little diffusion. Consumer organizations are in formation, and mechanisms to ensure food security do not yet exist.

Policy and regulations

In the international context, food quality is a vital issue for competitiveness in the global market. Quality must be a key objective of each and every institution in the country. The government, producers, industry, retailers, cooperating organizations, consumers, and other agents must consider quality as a central concern. All people can and must strive hard to reach it, to maintain it, and to improve it constantly. The attainment of quality implies continuous improvement and maximum efficiency and effectiveness in the social, technical, and administrative systems. In this context, the government's function will be to provide a favorable framework for industry to implement quality and safety systems, including regulation activities, establishing food safety policies and programs that must be applied and managed through a strategic national plan, directives for indus-

try, qualification, and coordination among industry and organizations for regulation and advisory activities. The function of producers and industry will consist of applying quality and safety systems.

Normalization in Peru

The National Institute of Defense of the Competition and Protection of Intellectual Property (in advance, INDECOPI, through the Commission of Technical and Commercial Regulations) is the National Device of Normalization, in charge of approving Peruvian Technical Norms (PTN) for all sectors. The PTN are of a voluntary character and are processed by the Technical Committees of Normalization that conform to INDECOPI with the support of public and private institutions, like the Industries National Society and Exporters Association. In these committees, all the companies and organizations, public or private, participate as well as consumer representatives interested in establishing technical norms in their respective sectors.

INDECOPI is also the National Organization of Accreditation in charge of recognizing the technical suitability of private and public organizations dedicated to the activities of tests, calibrations, and certification of conformity of products and systems of quality. The National Commission of Exports (PROMPEX) supports the conformation from Committees of Normalization for products of export. There are committees for coffee, beans, and asparagus.

HACCP in the national regulation

Peru recognizes the importance of HACCP and, within the framework of the obligations and commitments necessary to achieve a multilateral system of food commerce and control, it is making a remarkable effort for HACCP's adoption in the national food industry.

A series of legal devices has been created, oriented to the adoption of the HACCP system by food producers, as much for national consumption as for export, expressing the government's effort to ensure that food commerce relationships are developed on the basis of obtaining a safety guarantee.

At the moment, the application of legal requirements is being developed for practical problems related to the introduction of HACCP, like establishing the criteria that processors will have to fulfill for implementing the system by product, determining priorities in the implementing HACCP according to type of food, facilities, and processes, as well as, defining the nationally acceptable degrees of risk with regard to safety, also by product.

Chronological summary of regulations

- Sanitary Hygienic Regulation of Foods and Drinks of Human Consumption, Supreme Decree N°001-91-SA, May 1997.

Dispositions for the regulation, monitoring, and hygienic control of all the stages of the food chain with the purpose of guaranteeing the safety of foods and drinks for human consumption to protect consumer health and facilitate the safe commerce of such. Also, sanitary norms to facilitate the international trade of foods and drinks.

- General Law of Health, Law N°26842, July 1997. Establishes the rights, duties, and responsibilities concerning individual health, as well as the duties, restrictions, and responsibilities in consideration to the health of third parties.
- Official Sanitary Certification of Foods and Drinks Destined for Human Consumption to the Export, Ministerial Resolution N° 519-97-SA/DM, November 1997.
- Code of Practices of Hygiene for the Processing of Conserve Asparagus, Ministerial Resolution N°536-97-SA/DM, November 1997. Joint application code with the “General Principles of Hygiene,” for the production of conserve asparagus in which the critical principles of Analysis of Risks and Points are used of control. This code contains the technological directives and the essential requirements of hygiene that are applied from the stage of primary production until the product arrives at the hands of the consumer.
- Code of General Principles of Hygiene, Ministerial Resolution N°535-97-SA/DM, December 1997. Application of general practices of hygiene in the manipulation (including the culture and harvesting, preparation, processing, packaging, storage, transport, distribution, and sale) of foods for human consumption with the objective to guarantee an innocuous, healthful, and healthy product.
- Regulation on Monitoring and Sanitary Control of Foods and Drinks, Supreme Decree N° 007-98-SA, September 1998. In accordance with the General Law of Health, and in agreement with the General Principles of Food Hygiene of the Codex Alimentarius.
- The Code of Practices of Hygiene for the Processing of Fresh Asparagus, elaborated for the Commission, HACCP, PROMPEX, and Peruvian Institute of the Asparagus, in 1998, applies in the asparagus sector.

PROMPEX considers the Regulation on Monitoring and Sanitary Control of Foods and Drinks attempts to unify and harmonize such regulations, and it introduces new agreed concepts related to food production safety in the worldwide scope. It is necessary to reinforce this framework and general structure in the monitoring and control of sanitary quality, delineating the functions of the different involved sectors, under a national policy of securing of food safety. This ordering of the normative system on monitoring and controlling the sanitary quality of foods requires the coordinated effort of different sectors and responsible institutions. These sectors and institutions will define with clarity its competitions, as well as establish coordination and consultation

processes for the elaboration of norms, like good practices recommended, by product, and the respective responsibilities in monitoring and control. In the same way, a reasonable attitude about a timetable for adopting the HACCP system by the food industry is recommended.

We understand that in many sectors, HACCP will give rise to changes in food producers' operations and methods to guarantee food safety. Given the absence of guidelines for HACCP application in terms of specific norms by product and the shortage of enabled experts to design, apply, and maintain these systems, we suggest a cautious approach to the use of this instrument of management. The experiences obtained in regard to the disadvantages of the adoption of system HACCP by companies and the sanitary certification for the export allow us to indicate that the objective of the HACCP—to assure food safety—would be better reached by examining the food chain longitudinally and focusing on foods that implied an important risk for public health.

On the other hand, it is verified that the effectiveness of HACCP in guaranteeing the food safety is greater when efforts have been made to negotiate the acceptance of systems like HACCP.

The Regulation on Monitoring and Control Sanitary of Food and Drink, contemplate the establishment of the procedure for applying HACCP and processing and implementing the plan and sanitary norms applicable to the manufacture of food products. Until the sanitary norms are dispatched, such manufacture will be governed by the norms of the Codex Alimentarius and the FDA.

At the moment, a project to implement HACCP as an obligatory, rather than voluntary, program, in all the food and drink industry and manufacturing establishments exists, but it is not applicable to small and micro companies. In this case, its incorporation will be progressive, in accordance with special norms that will be approved in coordination with the Ministry of Industries, Commercial Tourism, Integration, and International Negotiations (MITINCI).

Also the National Committee of the Codex Alimentarius has been created for inter-institutional coordination to periodically overhaul the sanitary norms in the matter of food safety, with the intention of proposing its harmonization with international norms. It is composed of a representative of the Ministry of Health (as Chairman), and by representatives of the Ministry of Agriculture, Ministry of Fishing, Ministry of Economy and Finances, Commercial Ministry of Industry, Tourism, Integration, and International Negotiations, Ministry of Foreign Relations, INDECOPI, and PROMPEX. This Committee, installed in 1999, will contribute to establishing the bases for food commerce with quality and safety, to ensure the required sanitary normative framework for planning productive activities and investment and to improve the competitiveness and to stimulate food commerce that is safe for consumers and for public health. Without a doubt, the National Committee of the Codex Alimentarius will become the forum where the dispositions are elaborated by a consensus that allow sustainable development of food production in the country.

In Peru, the National Service of Agrarian Sanity (SENASA, in Spanish) has the mission to ensure the sanitary and plant sanitary

security of the country, as well as execute programs and projects of prevention, control, and eradication of plagues and diseases that interact with the socioeconomic status of agrarian activity. Nine years after its creation, the achievements of SENASA are the following:

- Defense and plant sanitary monitoring
- System of investigation and agrarian health
- System of investigation and agrarian health
- Defense and animal sanitary monitoring
- Control of diseases in the animals.

Food safety information, training, and education for both industry and the public

CONGRESSES ON FOOD SECURITY Because of the importance of food security, the Engineering of Industries and Food Industries of Engineers Association of Peru organized in 2001 the First International Congress on Food Safety. During that meeting, research and practical experiences on the subject were discussed and publicized.

QUALIFICATION Following the abovementioned steps, strengthening human resources in the food system is a fundamental element for Peru's success in implementing HACCP.

DIGESA, in coordination with the Ministry of Foreign Relations, and with the collaboration of the Committee of Fishing of the Exports Association (ADEX), the National Society of Fishing (SNP), the technical cooperation of the Food and Agriculture Organization (FAO), and the technical cooperation between developing countries (CTPD) of Brazil and Uruguay, implemented the course, "Workshop on Implementation of an HACCP System in the Processing of Hydro-biological Products of Human Consumption." The workshop was held in several cities (Paíta, Chimbote, and Lima) in order to facilitate the participation of industry representatives and technicians responsible for all the companies involved in the export of hydro-biological products for human consumption. There were 105 participants.

Another workshop was conducted on the fishing industry's inspection program based on HACCP. The lecturer was Dr. Jorge Laboy, Head of the National Training Center, U.S. Department of Commerce, National Oceanic and Atmospheric Administration

(NOAA), and there were 32 participants.

RESEARCH INSTITUTES The Agroindustrial Development Institute (INDDA) is an organization that belongs to the Agrarian National University La Molina (UNALM) and deals with productive, food-industrial and exporting sectors. It offers specialized services like the transfer of food industrial technology, particularly those that are the most natural, and the maintenance of international norms for quality, health, nutritious health, ecological aspects, and consumer protection.

UNIVERSITIES The Agrarian National University La Ivloina has "La Molina Total Quality – Laboratories," which are authorized laboratories in charge of certifying food products acquired by public organizations, like the National Program of Food Support (PRONAA, in Spanish) and the National Fund of Compensation and Social Development (FONCODES, in Spanish), and certifying export products. Also the Agrarian University has a specialization program on the Management of Total Quality and Productivity that includes courses about HACCP implementation.

The Catholic University of Peru has an Institute for Quality, which educates auditors and managers about quality and systems like ISO 9000. They are regular programs that are endorsed by organizations of international quality certification.

TRAINING FOOD INSPECTORS DIGESA has a training program to qualify municipal inspectors and prepare them for monitoring food security in commercial markets or retail establishments, as well as for assisting in implementing suitable food handling practices.

Food safety research in the food distribution system

Other problems related to food security are labeled equivalents. The metrical norms about food establish that in labels and packaging must contain the nourishment composition and the expiry date of food, the name and address of the manufacturer, and the conditions for storage and conservation. These norms are being fulfilled in Peru, which is a significant advance in terms of providing consumers more so that they can make better decisions.

PERU

	Units	1997	1998	1999	2000	2001 ^f	2002 ^f
FOOD CONSUMPTION PATTERNS ^a							
Per-capita caloric intake	Cal/day	2348	na	na	na	na	na
From animal products	Cal/day	370	na	na	na	na	na
From vegetal products	Cal/day	1957	na	na	na	na	na
INCOME AND FOOD PRICES							
Per-capita income	US\$/capita	1724	na	na	na	na	na
% of disposable income spent on food ^(b)	%	45.6	na	na	na	na	na
Food price index	1990=100	1818.8	1925.4	1909.9	1938.5	1967.5	1997.1
General price index (GPI)	1990=101	2242.6	2377.3	2469.1	2561.9	2654.1	2749.6
POPULATION							
Total population	Million	24.4	24.8	25.2	25.6	26.1	26.5
Urban	Million	17.5	17.8	18.1	18.4	18.8	19.1
Nonurban	Million	6.9	7	7.1	7.2	7.3	7.4
Share of population in the following age groups							
0-4 years	%	11.9	11.7	11.5	11.3	11.1	13.6
5-14 years	%	23	22.7	22.4	22.1	21.8	25
15-19 years	%	10.8	10.7	10.6	10.5	10.4	10.9
20-44 years	%	36.9	37.3	37.6	37.9	38.2	34.7
45-64 years	%	12.8	13	13.2	13.4	13.6	11.9
65-79 years	%	3.9	4	4	4.1	4.2	3.4
80-over years	%	0.7	0.7	0.7	0.7	0.7	0.5
Median age of population	Years	20.3	20.4	20.4	20.5	20.5	20.6
Female labor force participation	%	41.3	41.9	42.5	43.1	n.a.	
LIFE EXPECTANCY ^(b)							
Males	Years	65.8	66.1	66.3	66.6	66.9	67.2
Females	Years	70.7	71	71.3	71.6	72	72.3
FOOD INFRASTRUCTURE							
Trade capacity							
Grain exports	1,000 tons	15	130	170	na	na	na
Grain imports	1,000 tons	2485	2798	2432	na	na	na
Total food and agricultural trade	Million US\$	1807	1712	1507	1330	na	na
Total food and agricultural exports	Million US\$	793	596	697	681.09	576.39	na
Perishable products	Million US\$	68	89	145	145	na	na
Fishery exports	Million US\$	1403	634	791	1141	na	na
Total food and agricultural imports	Million US\$	1014	1116	810	788.2	895.05	na
Perishable products	Million US\$	26.6	24.2	19.6	18.1	na	na
Road access	Kms	969	1106	na	na	na	na
Rail access	Kms	873	942	na	na	na	na
Telecommunications ^(d)	Telephone lines	1920	2012	2001	2022	na	na
Power generation	Gigawatts	17953	18583	19049	19902	19811	na
ROLE OF AGRICULTURE AND TRADE IN THE ECONOMY							
Agriculture as a share of GDP	%	7.7	7.9	8.7	6.4	7	7
Self-sufficiency in horticultural products	%	100	100	100	100	100	100
MACROECONOMIC INDICATORS ^(e)							
GDP growth	PBI	6.746	-0.533	0.948	3.127	1.6	4
Interest rate	%	31.1	32.6	35	30	25.3	23
Exchange rate	New Sol/US\$	2.72	3.13	3.48	3.52	3.56	3.89

(a) Escuela de Administración de Negocios para Graduados (ESAN)

(b) Cuanto S.A.

(c) Ministerio de Agricultura - Oficina de información Agraria.

Superintendencia Nacional de aduanas (SUNAD)

(d) Telefónica

(e) Instituto Nacional de Estadística e Informática (INEI), Banco Central de Reserva del Perú (BCR), Promperú