



FOOD AND AGRICULTURE
ORGANIZATION OF THE
UNITED NATIONS

WORLD HEALTH
ORGANIZATION



E

Agenda Item 4c

PEC 01/05

FAO/WHO PAN-EUROPEAN CONFERENCE ON FOOD SAFETY AND QUALITY

BUDAPEST, HUNGARY, 25 – 28 FEBRUARY 2002

CONFERENCE PAPER

SYSTEM OF FOOD SAFETY IN POLAND PRESENT SITUATION AND PROSPECTS FOR CHANGE

L. Szponar

National Food and Nutrition Institute, Warsaw

B. Wojton,

State Institute of Veterinary Medicine, Pulawy

Overview

This paper reviews the food safety situation in Poland with an emphasis on harmonisation and changes in food safety regulation since 1989, moving towards accession to the European Union. It reviews the changes following the introduction of a market-orientated economy and how these have impacted on agriculture and food production, contributing to improved food safety. Strategies for further improvements, including the development of food safety policy and reform of food controls is discussed, indicating the future direction and emphasis for the system of food safety in Poland.

1. Introduction

Since 1989 there have been many changes in Poland - political, economic and social. Food production systems have also changed over the past decade with the introduction of a market-orientated economy. The main challenges have been the adaptation to the legal requirements of the European Union and producers' acceptance of responsibility for food safety and quality.

In the past a number of factors restricted developments: the specific character of the Polish agriculture (mainly small farms); insufficient modernization; insufficient investment; and inadequate education of food and agricultural producers. There have been significant changes and improvements in all these areas in recent years.

The results of official controls and quality testing of food products reinforce these

improvements, showing that chemical and microbiological risks to public health have been reduced over the past five years. Pollution of soil, water and food has also diminished over this period. However, further improvements are necessary, especially in the quality of foods of animal origin.

The national authorities in Poland (the Ministry of Health, the Ministry of Agriculture and Economy) are collaborating in the development of a strategy and policy for health protection, within an integrated Europe. Emphasis is given to the improvement of food quality and safety from field to table, dietary habits and nutrition, and prevention of food-borne diseases and diet-related health disorders.

Reform of the existing (seven) systems of official food control in Poland that deliver and monitor food safety are ensuing to ensure that the challenges of delivering safe quality food can be met efficiently and expediently in the new climate. The current dispersed system is in the process of restructuring towards an optimised and centralised system. It is anticipated that a new Food Authority will also be created, and that within two years the unified system of food control will be governed by the Ministry of Health.

1.1 Harmonization of Regulations

The process of harmonization of legal regulations with the requirements of European Union (EU) has contributed to food safety improvement. For example, over the past seven years since adopting EU rules for the production of raw milk hygiene, standards have improved three fold; the adoption of EU regulations on infant formula and follow-on foods has contributed to improved standards of these important foods, upto the same safety and quality levels as the EU.

Poland also takes into consideration the development of food safety systems and principles proposed not only by the EU, but also those laid down in Codex Alimentarius, following the "Food and Nutrition Action Plan" of the WHO European Bureau, and the suggestions of OECD expert groups.

1.2 Public health risk reduction programmes

Three research institutions¹ have formed a consortium to undertake a programme (2002-2004) concentrating on public health risk reduction, through the identification and prevention of biological, chemical and physical threats in the (human) environment, including food, and emergency situations. Specific threats include chemical stresses endangering the natural environment and consequent effects on water, food, environment and human health, and widespread human exposure to low-level ionizing and non-ionizing radiation.

The programme was initiated as a result of observing the current epidemiological situation and, the appearance of emergency situations, including those threatening food safety. It will concentrate on:

- Public health risks from biological factors
- Chemical and physical safety of the environment
- Food quality and safety versus health
- Prevention of diet-related diseases
- Strategic policy in public health.

¹ The State Institute of Hygiene, Food and Nutrition Institute, and Military Forces Hygiene and Epidemiology Institute.

1.3 Changes in emphasis in food safety

There have been numerous transformations aimed at improving the functioning and development of an improved food safety system in Poland in recent years.

The present actions for improvement include:

- implementation of new legal regulations on food safety and quality, in agreement with both EU and Codex Alimentarius requirements
- implementation of quality assurance systems in many food production plants
- further restructuring of the official food control system leading to better integration of services
- national monitoring of contaminants (likely to cause a health risk) in parallel with nutritional surveillance of diets and biochemical tests, to give the full picture and magnitude of food and nutrition risk factors at population level
- scientific research development within the European Union Fifth Framework Programme dedicated to food safety
- the development of an Agriculture Knowledge system (particularly graduate and postgraduate education) in the area of food safety and quality.

In addition, there has been development of a Polish food safety strategy, with emphasis on the application of systemic solutions. The task is to prepare² a strategy for government administration of a coordinated system of actions to ensure adequate quality of food. In particular, supervision of the production of agricultural products for foods and feeds with consideration of European Union requirements, alongside developments of the European Food Agency.

2. Present situation in Poland

2.1 Population

Poland is a country of 312,685 square kilometers with almost 39 million people, 62% living in towns and cities, and 38% in rural areas. The demographic structure shows the population is relatively young compared with most European Union countries. Nearly 58% of the population is below 40 years of age; those aged over 60 make up 16.54% of the population.

The proportion of people occupationally active and working in agriculture, (compared with EU countries) is presented in Table 1. In Poland 23.3% of all working people are in occupations related to agriculture and forestry, compared with a fifth of this number on average (4.8%) in EU countries. In this respect Poland resembles the situation of certain EU countries (such as Germany or France) 40 years ago. These figures show that the process of demographic and social changes in Poland, with workers in agriculture moving into employment in other areas of the national economy, is not dynamic.

² In consultation with the ministers for public administration, agriculture, health, agricultural markets and the President of the Office of Protection of Competition, and Consumers.

Table 1: Occupationally active population working in agriculture

Country	Working in agriculture thousands		Occupationally active population in agriculture as % of all occupationally active population	
	1990	1997	1990	1997
EU	10,871	8,492	6.4%	4.8%
Poland	5,146	4,569	27.5%	23.3%

Source: GUS. Agriculture Statistical Yearbook. Warszawa 1998

2.2 Employment in the food industry

Further progress and development of the food industry is essential for processing agricultural products and meeting the nutritional needs of consumers. The average number of workers employed in the food industry in 1997 (Table 2) shows that the greatest number of workers were employed in the production and processing of meat, in the production of bread and fresh bakery products, cakes and pastries, and dairy products. Employment was lowest in potato processing, production of oils and vegetable or animal fats, wine and other distilled drinks.

Table 2: Average employment in food industry in 1997 by work type^a

Specification	Average employment in food industry	
	thousands	%
Total	498,8	100
Production, processing and preserving of meat and meat products	114,2	22,9
Processing and preserving of fish and fishery products	13,1	2,7
Dairy products production	61,3	12,3
Production of cereal products, spaghetti, noodles and similar flour products	19,6	3,9
Production of bread and fresh baker's products, cakes and pastries	62,9	12,6
Production of sugar	26,5	5,3
Potato processing	4,6	0,9
Production of fruit and vegetable juices, processing of fruit and vegetables, other not classified elsewhere	41,5	8,3
Production of oils and animal or plant fats	5,0	1,0
Production of biscuits and rusks, production of prolonged	40,5	8,1

duration pastries and cakes, cocoa, chocolate and confectionery		
Production of distilled alcoholic beverages, ethanol production by fermentation of raw materials	9,4	1,9
Production of grape wines, cider and other fruit wines, production of other non-distilled drinks from fermentation	7,6	1,5
Production of beer and malts	15,3	3,1
Production of tobacco products	12,2	2,4

a – data concerning economic entities with number of employees not exceeding five

Source: GUS. Agriculture Statistical Yearbook. Warszawa 1999

2.3 Agriculture

Agricultural production in Poland is relatively clean owing to a considerable drop in environment contamination over the last decade, and the relatively low use of artificial fertilizers. Comparative analysis of EU data shows that the utilization of nitrogen fertilizers for one hectare of arable land is not high (39.4 kg) as compared to that in Spain (37.5 kg) and Portugal (31.5 kg). In the Netherlands the utilization of nitrogen fertilizers is tenfold higher than in Poland, and in Denmark it is threefold higher.

Favourable environmental conditions for agricultural production are confirmed by low soil contamination with harmful metals. Data from 1999 on soil levels of heavy metals shows that the percentage of samples with lead, nickel and copper levels exceeding the permitted values did not exceed 3%. For cadmium, the percentage of samples exceeding the safe level was higher: 10.5%.

2.4 Water

The quality of water from public and water plant installations is good, in most cases. The proportion of water supplies with poor quality was relatively low, especially in towns. The situation is not so good in local water plants. Data shows that in 1999 over 85% of local water plants in towns, and 80% in rural areas, provided good water. Well water is used mainly for household needs on farms and in small production plants. From 1990 - 1999 the proportion of wells with poor quality water decreased from 45.5% to 41.1% from public wells, in plant wells from 28.8% to 25.5% and in household wells from 51.6% to 41.3%. In rural areas during the same time period the percentage of farm wells with poor quality water fell from 61.1% to 41.5%.

In a decade the sanitary quality of water has improved considerably. Similarly, water supplies have improved; the network of water pipes has been extended and new water processing methods introduced. However, water quality in country regions is not consistently good. The quality of water supplied for the purposes of food industry should improve further.

3. Monitoring of selected food products

In Poland food quality control is carried out by monitoring programmes, official food control activities (mainly sanitary and veterinary inspections) and scientific research.

Since 1991 monitoring of the quality of soil, plants, agricultural products and food products has been carried out for selected chemical contaminants. The Ministry of

Agriculture and Rural Development and their scientific research institutions lead this work. Monitoring presently covers:

- basic commodity products important in the national diet
- contaminants constituting the greatest potential health risks, including harmful metals, pesticides, nitrates, polychlorinated biphenyls, aromatic hydrocarbons, and certain mycotoxins.

The results of Polish food monitoring for 1999, when compared with similar data from preceding years, demonstrates that raw materials from plant and animal sources, were of good quality and overall met the criteria for chemical contamination permitted levels as laid down in Polish legislation. These changes have been brought about by a number of factors particularly the closure of heavy industries that previously polluted the environment, and the change to lead-free petrol.

Some examples demonstrate this: In the past five years the proportion of samples with cadmium and lead levels exceeding the highest permissible contamination has been decreasing. Presently the lowest proportion of samples with excessive contamination was found in rye - 0.6% contained cadmium in permitted amounts and 1.9% contained permitted amounts of lead. The highest levels of excessive cadmium and lead content were found in wheat samples, 7% and 5% respectively contained these heavy metals in amounts above the highest permissible levels.

Some problems still persist but are improving: Monitoring of nitrates in vegetables since 1995 showed that in about 18% of samples the levels of these compounds were still above permissible values. The highest numbers of samples with excessive nitrogen content were found in horseradish 43%, garden beets 36.6%, white cabbage 34%. The lowest numbers were in cucumber 0.4%, tomatoes 1% and carrots 10.7%. In recent years the proportions of samples with excessive nitrogen levels have decreased, especially for potatoes and parsley. Overall the monitoring results showed that the percentage of samples with excessive levels of contaminants dropped significantly for seven vegetables; for five the proportions remained unchanged or increased slightly.

Conversely results from the monitoring studies of pesticide residues in selected plant raw materials tell a different story. While the data indicated that the health risks associated with the use of pesticides is relatively small, the proportion of samples with pesticide residues above the permissible level was 1.39%. In the period from 1995 to 1999 the percentage of samples with pesticide residues increased from 6.1% to 8.7% and the proportion of samples with the highest permissible contamination increased from 0.2% to 1.39%. This may, in part be explained by improved sampling and monitoring techniques, but there is no simple explanation for this change - which will be monitored further.

In 1999 no samples were found with cadmium and lead concentrations above the highest permissible content in raw animal materials, (including liver and kidneys). Cadmium levels in animal muscle and liver and in cows' milk were also below the permissible values. Cadmium in concentrations above 1 mg/kg was found in 9% of pig kidneys and 27% of bovine kidneys. For that reason, smoked offal products are not recommended in the diet of pregnant women and children. Fortunately, according to the dietary survey of 2000 only a small percentage of the population consumed these foods.

Monitoring studies since 1995 have demonstrated that antibiotic residues are still present in milk as a result of inadequate withdrawal periods being enforced. These substances were present in about 5% of milk samples, although according to Polish regulations these compounds should not be present at all. Antibiotic residues in milk are a health risk for consumers, and cause considerable financial losses to farmers since this milk is excluded from the human food chain.

4. Monitoring and inspection results

Results of sanitary inspection (1990-2000) for the whole country show that over 80% of food produced in Poland, or imported, are safe. The sanitary inspection service cooperates closely with the veterinary inspection in official food control.

A detailed analysis of food products produced in Poland in 1999-2000 indicates that in seven out of nine groups of food products the percentage of unfit or disqualified food samples has decreased. Highest improvement was noted in plant fats, milk and meat, excluding canned meat. The percentage of unfit samples of ready-to-eat products in retail outlets has risen in that period. The highest proportions of unfit samples in 2000 were butter 23%, ready-to-eat dishes 24%, fish and fish products (excluding canned fish) 16%. The lowest percentage of unfit samples was in vegetable fats 2%, fruit, vegetables, mushrooms and their products 5%, and bakery products about 8%.

Most frequently poor microbiological quality was the problem. In 2000 this caused 25.2% of butter samples to be unfit, 24% of ready dishes, and nearly 17% of milk samples. From 1998-2000 the situation was worst for bakery products, where the proportion of unfit samples increased from 10.3% to 19.5%. It is interesting to note that food labeling infringements had reduced in seven out of the ten food groups analyzed in this period.

The proportion of samples unfit due to chemical contamination was evidently lower than due to microbiological contamination. In summary, the improvement in the quality of food (as controlled by sanitary inspection) is gradually improving - but slowly, see Table 3.

Table 3: Main infringements by food groups in 1998-2000

Product or group	Microbiological Analysis			Chemical analysis			Labeling		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Meat, meat products (not canned)	11,2	13,4	12,5	9,9	8,3	6,4	10,1	10,5	6,9
Liquid milk for consumers	19,7	19,8	16,6	2,1	2,3	2,3	1,8	0,7	0,6
Butter	24,0	25,4	25,2	4,4	4,7	4,7	1,5	2,0	0,5
Fish and fish products (not canned)	10,5	13,0	13,8	3,3	4,0	3,7	3,1	2,7	2,6
Vegetable fats	0,9	1,0	0,8	1,7	3,4	1,8	0,5	0,9	0,6
Animal fats	15,4	-	-	4,4	6,8	5,8	8,0	5,6	5,8

Ready dishes	21,4	21,3	24,0	4,0	3,8	4,5	5,1	5,4	6,0
Fruit, vegetables, mushrooms inc. products	3,1	5,9	2,2	6,5	5,2	4,9	3,4	2,9	2,8
Bakery products	10,3	13,5	19,6	1,3	1,2	1,7	5,1	6,6	8,7
Soft drinks	10,0	7,8	7,0	6,5	4,3	7,0	7,8	6,4	7,6

Source: Own analysis based on data from Province Sanitary Epidemiological Stations.

Results from the Veterinary Inspections and the State Institute of Veterinary Medicine in Pulawy (1995) indicate that there were significant microbiological problems. The microbiological quality of milk and its products has been a persistent problem in Poland. For example the 1995 results showed that almost 22% of hard cheeses and almost 20% of unripened cheeses had considerable problems; while even the lowest number of problems - from powdered milk was over 9% and milk drinks and desserts over 10%. Similarly the microbiological quality of smoked meats showed that the highest number of unfit samples was from part-cooked sausages (about 7%) and smoked offal products (about 6%). The lowest level was in smoked poultry products (about 1%) and cooked sausages (over 2%).

4.1 Contamination assessment of daily food intakes

The level of risk that consumers' experience from chemical contamination can be obtained by analyzing the quality of food consumed on a daily basis. In Poland, monitoring of the health quality of food intakes has not been conducted routinely but many scientific research centres focus on this problem. Results of studies of contaminants (lead, cadmium, mercury and nitrates) point out that in the overwhelming majority of cases daily intakes are satisfactory. For example: the mean tolerable weekly cadmium intake was not exceeded in any daily dietary intake and fell within the range of 27-88% of the Provisional Tolerable Weekly Intake (PTWI) even though some foods came from regions regarded as particularly contaminated. A similar situation was noted for lead: the maximum tolerable weekly intake was not exceeding 70% of PTWI. Mercury contamination analyzed per person/day showed that in the diets studied mercury was present in relatively low concentrations, not exceeding 25% of PTWI.

A similar situation has been found for nitrate contamination of food intakes. In recent years the content of these compounds in raw materials has been decreasing, leading to a reduction in daily food intakes. The content of nitrates and nitrites in traditional diets is not a health risk. However, those consuming high amounts of vegetables could be at risk of excessive nitrate and nitrite levels.

The data all points to a progressive improvement of the safety and quality of food in recent years in Poland. Concentration on harmonizing of regulations with those of the EU, and structural changes and improvements throughout the food chain have all contributed to this progress.

One of more important indicators of the food safety is the incidence of food poisonings and food-borne infections nationally. Data published by the State Institute of Hygiene shows that in 1998 the total number of food poisonings and foodborne infections was 30,515 cases; due mostly to Salmonella infections. These problems did not originate from mass catering institutions but mainly from household contamination.

Table 4: Foodborne intoxications and foodborne poisonings in Poland 1994-1998

Aetiological factor	Years									
	1994		1995		1996		1997		1998	
	No of cases	%	No of cases	%	No of cases	%	No of cases	%	No of cases	%
Salmonella	36,277	93,4	30,029	88,6	26,052	90,2	23,157	82,9	26,675	87,4
Staphylococci	268	0,70	760	2,2	213	0,7	450	1,6	375	1,2
Cl. botulinum	116	0,30	118	0,4	107	0,4	81	0,3	93	0,3
Other bacteria	2166	5,6	2990	8,8	2497	8,7	4 234	15,2	3372	11,0
Total	38,827	100,0	33,897	100,0	28,869	100,0	27,922	100,0	30,515	100,0

Source: Przybylska A.: Przegląd Epidemiologiczny nr 1-2, 1999, 1-2, 1998, 1-2, 2000

4.2 Food hygiene in food production and processing

In the last decade the sanitary condition of food production and processing plants has improved owing to modernization of a considerable number of plants. Improved accommodation, equipment, new production lines, the widespread introduction of quality assurance systems and increased awareness of the responsibility of producers for food safety and quality have all contributed.

In 2000 the percentage of food and nutrition institutions assessed as in a poor hygienic state (as supervised by the Sanitary Inspection) was on average 16.44% in the total (350,904). Of these 3.24% were classified as inadequate both in technical aspect and hygiene, 7.41% as inadequate in technical aspects, and 5.80% as inadequate in food hygiene.

5. New approaches to risk analysis

The introduction of the risk analysis approach throughout the food chain is playing a central role in food safety policy and strategy in Poland.

Risk analysis related to food safety is studied by many scientific research centres and ministerial advisory bodies³. Where there are particular problems of health risks related to food, special attention is given to organizing scientific conferences and training courses for the presentation of research results, evaluation of the problems and development of proposals for practical solutions to improve health protection.

³ The main scientific centres in Poland working on the problems of risk analysis are: The National Food and Nutrition Institute; The State Institute of Veterinary Hygiene; The State Institute of Hygiene other scientific research institutes, the pertinent chairs at Agriculture Universities, and certain institutes of the Polish Academy of Sciences. The Sanitary-Epidemiological Council of the Ministry of health the opinion-forming and advisory organ of the General Sanitary Inspectorate, also periodically prepares evaluations and opinion on food safety.

Long-term governmental projects are sponsored where several centres and many experts are working on food safety and risk reduction projects. Projects on risk evaluation and scientific research are conducted independently and receive financial support from the State budget. Studies on risk analysis are conducted using methods accepted in EU countries.

The analysis of risk in the food industry is carried out through HACCP systems. In Poland HACCP is obligatory in plants producing dietetic food products. Even so for several years in many other areas, it has been implemented voluntarily. HACCP has been adopted particularly by the meat, dairy and fruit-vegetable production industries. In most cases, where foreign capital has been invested in food plants, HACCP has been introduced.

6. Education and communication about food safety.

The new approach taking into account the whole food chain approach to food safety requires that education and training take into account the whole food chain - from agricultural raw materials through to food processing.

Postgraduate education in food safety for skilled workers in agriculture, industry and official food control agencies is provided by scientific-research Institutes⁴.

In the area of food processing at postgraduate level, food safety education is also provided by other pertinent agencies from the food industry, governmental institutions, and non-governmental organizations, such as the Central Technical Organization, particularly the Association of Engineers and Technicians of Food Industry, and other producer associations.

Governmental institutions participate in postgraduate education through the input of official food control practitioners, such as sanitary inspectors, veterinary inspectors and inspectors of agricultural products. Some training activities include input from organizations in EU countries participating in the 'PHARE' programme, in cooperation with Polish institutions.

When communicating about food safety risks, information is provided by the sanitary inspection groups (under the General Sanitary Inspector) and other official food control services, as well as consumer organizations, the Office of Protection of Competition and Consumers, and press spokespersons of various ministries. In the National Food and Nutrition Institute, communicating with the public about food, nutrition and health through mass media is a major activity.

7. Agricultural education and support

Expert assistance for farmers is provided through a system of agricultural counselling. The restructuring and modernization of agriculture (during the process of adaptation to the common agricultural policy of the EU) would not be possible without this support.

Since 1991 agricultural counselling services have been in a process of reform. Presently counselling helps farmers in many ways, such as:

- analysing the current situation and assessing prospects for the future
- raising knowledge and facilitating understanding of emerging problems, including those

⁴ These research institutes include: National Food and Nutrition Institute; State Institute of Veterinary Medicine; State Institute of Hygiene; Institute of Cultivation, Soil and Fertilization in Pulawy; Institute of Biotechnology; Institute of Meat Industry.

of food safety

- obtaining the detailed information necessary for problem solving
- facilitating adaptation, restructuring and modernization for increased productivity
- facilitates creation and development of an enterprising attitudes and abilities
- introducing accounting systems
- active development in rural areas.

The present Polish counselling system has similar dimensions as those within the EU:

- socioeconomic counselling for rural population
- aid in obtaining of qualifications for new occupations for agricultural workers,
- occupational re-education for those who intend working in the modernized agricultural systems
- aid for in learning about the legal, financial, fiscal, agricultural and other regulations.

The Agricultural Counselling Centres in Poland are run presently by about 1000 specialists. These have a university education and particular skills and information, such as computer networking and market information at their disposal.

Apart from services in the provinces about 310 regional agricultural counselling groups have been established throughout Poland.

7. Official controls

Reform of the structure and organization of official controls in Poland is underway, as is legislative reform. There has been a new food Act to align Polish regulations with those of the EU.

Additional reforms of monitoring and surveillance systems for official food controls are being introduced to rationalised and streamline the current system. At the moment there are seven systems of official food control. This dispersed system is in the process of being restructured to optimise these services.

A new food strategy and policy is under consideration. Poland intends to create a similar unified Food Authority as Food Standards Agency in UK. This unified system of food control will be governed by the Ministry of Health.

Concluding, as a result of political, economic and legal changes in Poland, the food safety and control system is in dynamic state, with continuous development and progress.

