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## **FOOD SAFETY IN POLAND IN THE ASPECT OF EUROPEAN UNION INTEGRATION**

**Abstract.** Food safety and quality are main issues in food economics. The first part of this paper deals with food quality in Poland before and after the process of integration with the EU. The conducted analysis have confirmed the improvement of Polish food quality. The sanitary conditions of Polish processing plants have also improved. But the concentration of nitrates is still very high in some vegetable products. The second part contains an analysis of the Polish exports and imports and their changes in the economic transition process. Wheat imports were higher than exports. In addition to this, the survey proved that Poland is self-sufficient in food production and food safety has improved in the transition period.

**Key words:** food safety, food quality, export, import, free market economy

The European Union has introduced food safety reforms which seek to regulate the production and consumption of high quality food. Since May 2004 Poland has been a member of the European Union and has had to obey the EU rules. The first objective of food policy reforms is to ensure food safety, what means enabling people to have sufficient food to lead healthy and active lives. This can be achieved when countries produce enough food domestically or import it. On the other hand, when the food is imported, domestic producers have problems with selling their own production and their incomes are not stable.

Food safety has an influence on how food is produced, processed, distributed and recycled. Food safety regulations are decisions that affect agricultural markets. The processes are particularly visible in countries which were in an integration process with the European Union markets.

Food safety is a very important issue, particularly in the developing countries and the new members of the EU because the rules must be introduced and obeyed in a very short period of time. Polish consumers now demand food with the same high standards as all EU citizens, whether the food is imported or produced domestically. Grunert [2005] says that consumers are more demanding and more critical, because they need high quality products in order to satisfy them. Zeithaml [1998] confirms this process and adds that consumers only buy products which have quality and safety attributes and are value for spending money. In Poland very important changes in food policy have been announced to all marketing food chain members. Farmers, for instance, are obliged to produce healthy food. This concerns

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healthy animals and the prevention of contagious animal diseases, for example bird flu or swine fever. Producers and processing plants also have to follow rules set up within the CAP. Food must be healthy, safe and customers must be fully informed about the products. The producers and food processing industry who do not follow the rules can only sell their products on local markets and the EU markets are closed for them.

### **Aim and method of analysis**

The aim of the study was to present food safety in Poland in European Union integration aspect. The food safety was discussed on the basis of materials available within the Common Agricultural Policy. Moreover, the data were obtained from the Central Statistical Office (GUS) and from the Ministry of Health. The data for milk procurement outlets and dairies were obtained from the Ministry of Agriculture and Rural Development. Data about the average cesium-137 concentration in some food products came from the National Atomic Energy Agency. The paper contains data from 1992 up to 2004. It includes information about the food quality, safety and an import and export analysis.

### **Food policy in the economic transition process in Poland**

The process of transition from a command and control economy to a free market economy in Poland started in 1991. The communist system favored the decisive role of government and the system was characterized by a constant lack of agricultural commodities.

The market economy, on the other hand, prefers private ownership, freedom of choice and private business. But some sectors, for instance agriculture, were not able to manage to adjust to the new situation. The Polish government offered some help by setting minimum prices to help farmers through guaranteed incomes. Moreover, the government offered some credits and loans for young farmers to modernize their farms. The membership of Poland in the European Union requires following a comprehensive food strategy with modern food and hygiene standards on all farms. The first step involves tagging animals to help trace food, diseases and food problems from the farm which is a crucial element in minimizing risk and informing consumers about producers. The European Union allows for diversity. It means that in addition to traditional food, the European Union countries can produce local specialties and promote organic farming. Moreover, the European Union has established a transition period for Poland and other countries (Czech Republic, Latvia, Lithuania, Hungary and Slovakia) because these countries did not complete upgrading, particularly for plants and meat

processing<sup>2</sup>. If these countries do not complete these adjustment processes by December 2007, their commodities can only be sold in the local markets without the possibility of export because the products will be labeled with information that “this product does not comply with EU standards”.

## **Healthy animals and genetically modified organisms**

Polish food safety also concerns animal health. Animals should be provided with good veterinary care to prevent disease. Food hygiene is treated as a priority and farmers who do not conform to hygiene regulations can only sell their commodities on the national markets. Animals are also accompanied by a passport which helps to identify the parentage of the animals. They cannot be treated badly because it results in poorer food quality. It is essential to maintain the animal health without a physical stress and transport or slaughter conditions should be updated to meet the consumer and EU expectations. Hobbs and Kerr [2006] say that chemical residues in fruits and vegetables, drug residues in meat, growth enhancing hormones used in animal production and use of children labour are the priority concerns of consumers in many countries.

Other important issues in food safety are genetically modified organisms, animal health, animal welfare and plant health. These aspects are particularly essential because careful knowledge of these processes helps to identify potentially dangerous contamination, which can lead to food poisoning. If a product contains some genetically modified material and its quantity is below a very low minimum threshold content it must be stated on the label. The aim of food labeling is to provide the consumer with information about product ingredients, manufacture, animal age, rearing, slaughtering or cut, storage methods, preparation, food allergies or food intolerance. Nowadays consumers pay attention to healthy eating, good nutrition and obesity. Information provided on products helps consumers to make informed decisions and help to eliminate food allergy reactions. Fulponi [2006] suggests that consumer loyalty is built by investments in quality or in quality control mechanism, which help to increase the firm's reputation.

## **Food quality in Poland in the EU integration aspect**

Food safety also concerns about food quality. Production payments encouraged farmers to produce more effectively and intensively using chemical fertilizers and exploiting natural environment methods. Over time, this policy changed and now farmers are encouraged to produce less, but the food quality must be better. Direct subsidies support

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<sup>2</sup> <http://europa.eu.int/comm/agriculture/index-en.htm>

farmers' incomes and help them to cover necessary costs to maintain hygienic standards, improve sustainable development, animal welfare and production, food safety and environmental protection. All these and other food policies have resulted in commodity prices and their unforeseen changes.

Table 1. Sanitary evaluation of some food industry establishments in the scope of food and nourishment hygiene (plants in poor sanitary condition as % of controlled plants in %)

Food processing or serving establishment	Years						
	1995	1996	2000	2001	2002	2003	2004
Milk procurement outlets	22,5	25,8	24,6	16,5	16,5	16,2	14,2
Dairies	8,3	7,4	16,6	20,7	25,8	26,4	38,5
Bakeries	15,3	13,1	17,5	16,0	14,6	15,2	12,6
Confectioneries	13,8	12,7	15,2	13,9	13,6	12,9	10,7
Fruit-vegetable and mushroom processing plants	9,0	8,5	16,2	14,7	13,2	10,1	7,9
Semi-finished food plants	10,5	9,9	21,1	20,7	21,5	20,8	14,0
Cereal-mill plants	21,3	19,0	33,3	24,8	24,8	20,7	14,6
Food concentrate plants	4,4	2,6	23,5	18,4	26,6	15,0	10,5
Groceries	41,4	40,4	18,3	15,5	13,1	10,0	8,7
Restaurants, bars and canteens open to public	20,9	20,3	15,4	14,4	12,8	10,6	9,1
Restaurants, bars and canteens with restricted admission	21,2	20,6	17,4	16,2	15,5	13,9	13,8
Market places	20,2	20,0	34,5	33,4	29,0	26,8	25,3

*Source: own calculations on the basis of Central Statistical Office data 1995-2004, Ministry of Health, Ministry of Agriculture and Rural Development*

Moreover, the plants sanitary conditions have improved as the results of adjustment to EU standards. During the period 1995-2004 the sanitary evaluation of some catering establishments in scope of food and nourishment hygiene have generally improved (tab. 1). The percentage of poor condition controlled plants have decreased. Only in dairies and semi-finished food plants the percentage of poor condition plants is still very high. These results will probably be changed because dairies must be adjusted to European Union quality standards. The small dairies which do not process milk, only buy milk directly from farmers, will be probably closed.

Food safety also concerns about food quality. Carr [2006] focuses on food security and its roots in the 1970s - era global-scale concern for food supplies. Previous issues concerned about famine and the possibilities to trade, technology and food aid adjustments. Food safety means eliminating the risk of contaminated food. In the EU food can be traced from producer to customer and the meat processing enterprises should identify their supplier. These rules will help to keep food safe and to monitor what the food contains. A very important issue is to identify farm animal feed to protect consumer and animal health. Using termostatic or beta-antagonist substances, hormones and pesticides from veterinary medicines or contaminated food containers is forbidden.

The sanitary evaluation of some domestic foodstuffs is rather optimistic for Poland (table 2). Over the years 1995-2004 the percentage of disqualified samples in surveyed samples of domestic foodstuffs generally decreased. It means, that the quality of food in Poland has improved as the results of EU adjustment process.

Table 2. Sanitary evaluation of some domestic foodstuffs (disqualified samples in % of surveyed samples )

Food product	Years (lata)						
	1995	1996	2000	2001	2002	2003	2004
Liquid milk	24,0	21,4	14,6	13,8	12,4	16,2	10,9
Butter	25,3	24,8	23,2	19,7	18,0	18,5	13,5
Meat excluding canned meat	-	8,2	7,8	6,4	5,8	5,5	3,2
Fish and processed fish excluding canned fish	13,3	12,6	16,0	13,2	14,2	7,9	3,8
Vegetable fats	3,3	3,6	3,2	3,2	2,5	2,8	0,9
Animal fats	11,8	13,4	10,7	15,9	9,2	5,2	3,7
Semi-finished food products	20,1	20,3	24,2	20,5	13,2	11,7	7,0
Fruit, vegetables, mushrooms and preserves	8,4	8,2	11,0	9,3	10,8	5,4	3,3
Bread including dry bread	7,1	7,7	8,7	8,5	8,7	6,0	6,3
Non-alcoholic beverages	18,4	17,8	13,1	10,7	9,0	7,8	3,3

Source: own calculations on the basis of Central Statistical Office data 1995-2004, Ministry of Health, Ministry of Agriculture and Rural Development

Another important issue of food quality is the concentration of harmful roots in food. Ritson and Mai [1998] describe food safety as a process which is opposite to food risk. It means that the strategy concerning food safety must eliminate all dangerous components of food. One of the most dangerous is caesium –137 concentration as it has bad influence on human health. The collected information has confirmed that the caesium 137 concentration has decreased in meat, eggs, fish and poultry in the years 1995-2004 (table 3). But the concentration of caesium 137 in plant production has not decreased. It means that special actions to eliminate the concentration of caesium 137 in plant production must be taken in close future. This and other harmful substances should be eliminated from plant products.

Table 3 Average annual caesium-137 concentration in some food products (in Bq/kg)

Year	Meat	Poultry	Fish	Eggs	Potatoes	Vegetables	Fruit	Cereals
1995	2,0	0,8	2,7	0,6	0,6	0,5	0,5	0,3
1996	2,5	0,9	2,4	0,7	0,6	0,5	0,5	0,2
1997	1,9	0,8	1,7	0,7	0,6	0,5	0,5	0,2
1998	2,3	0,7	1,0	0,7	0,6	0,6	0,5	0,2
1999	2,3	0,9	1,4	0,6	0,6	0,6	0,5	0,1
2000	2,6	0,8	1,8	0,7	0,6	0,6	0,5	0,1
2001	1,9	0,9	1,3	0,7	0,7	0,7	0,5	0,2
2002	1,7	1,1	1,7	1,0	0,8	0,5	0,5	0,2
2003	1,7	0,8	1,8	0,7	0,6	0,7	0,5	0,2
2004	1,2	0,7	1,3	0,7	0,8	0,6	0,5	0,3

Source: own calculations on the basis of Central Statistical Office data 1995-2004 and the National Atomic Energy Agency

Food quality is a crucial strategy in food markets. International supply chains can function when the food standards are established. Quality standards are used by buyers and sellers as a useful tool in quality perception and control. Nowadays, food standards are established for most of agriculture products: potatoes, meat, eggs, vegetables and other. Most

world trade organisations use these standards and mainly governments, industry, exporters and other. Food quality standards can improve consumer's information about product quality in world and enterprises must inform consumers about products to solve the information problem [Fulponi 2006]. Each country has its own standards, but most of them are becoming global standards in food system across the world. International standards help in goods' distribution in the world and reduces the risk of consumers' poisoning and allergy.

Food quality strategy includes the increase of consumer awareness. Official food quality control system in the EU is based on the principle of product quality assurance. Producers are responsible for product quality at all stages of production by implementing internal control system to guarantee high quality product. Quality assurance process is supported by state institutions which are element of the external control system. Their aim is to protect consumers health.<sup>3</sup>

Nowadays concerns have been rising among consumers in many countries regarding the attributes of goods. These concerns include mainly chemical residues on fruit and vegetables [Hobbs & Kerr 2006]. Food safety concerns the concentration of nitrates in vegetables. This substances are particularly harmful to human health because they may cause serious diseases such as cancer. The information in table 4 have proved that the highest number of samples with exceeding concentration of nitrates was detected in red beet (46,5%), radish (52,7%), cauliflower (41,0%) and celery (34,1%). On the other hand, the lowest concentration of nitrates have been observed in: tomatoes 90,0%), cucumbers (0,5%), lettuce (7,9%). These results have confirmed that Polish agriculture needs implementing more organic methods of farming.

Table 4. Contents of nitrates in vegetables and in potatoes sampled in 2003

Vegetable	Contents of nitrates (mg/kg of fresh substance)		Samples exceeding the standard	
	HPC <sup>1</sup>	Average	No of cases	%
Carrots	474	221,9	71	15,0
Parsley – root	201	470,8	70	34,8
Cucumbers	420	98,6	2	0,5
Cauliflower	78	359,1	32	41,0
Celery	129	415,1	44	34,1
Tomatoes	182	19,6	-	0,0
Potatoes	528	153,1	128	24,2
Lettuce	101	1227,9	8	7,9
Radish	74	1775,4	39	52,7
Red beet	301	1727,6	140	46,5
Spinach	15	1380,6	3	20,0
White cabbage	362	631,5	95	26,2

<sup>3</sup> Agriculture and Food Quality Inspection in Poland

<sup>1</sup> The Highest Permissible Contents according to an ordinance of the Ministry of Environment (Journal of Laws 2002 No. 165, item 1359)

Source: own calculations on the basis of Central Statistical Office data for 2004 and Ministry of Agriculture and Rural Development

## Export and import analysis

Export and import analysis of chosen commodities also provides interesting data about food safety and food production. Since 1992 the balance of wheat exports and imports was disadvantageous for Poland in the transition period. Only in 1998, 2002 and 2004 was the balance of wheat exports advantageous for Poland (table 5). During the analyzed 15 years, both Polish dependence on wheat imports and domestic wheat demand have declined (since 1998). The government should focus attention on the wheat market to eliminate stress and wheat production insecurity because the import and export variability appears to be significant in price volatility.

The situation of beef balance in Poland in the transition period looked much better. Until 1993 the balance was detrimental. Since 1994 the balance of beef exports and imports has been positive. A particular increase in positive export and import beef balance has been visible since 2004. It is also an effect of a decline in domestic use. Similar results were obtained from pork export and import balance. Since 1995 the balance is positive for Poland. The presented data in table 4 suggests that Poland is self-sufficient in agricultural production. Only wheat policy needs more stabilization actions. Higher food supplies can be the effect of production increases and it will improve food security [Christon 2000].

Table 5. Export and import of analyzed commodities (thousand tons)

Specification	Year												
	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
Wheat													
Initial stock	1092	281	630	481	918	2514	1716	1583	1165	1067	1334	640	268
Harvest	7368	8243	7659	8668	8578	8193	9537	9051	8503	9283	9304	7858	9892
Import	614	500	785	1002	2188	568	497	287	912	351	149	203	220
Total supply	9074	9023	9075	10151	11680	11274	11750	10882	10580	10721	10788	8701	10380
Domestic use	8766	8360	8523	9010	8950	3950	9675	9618	9419	9307	8998	8355	8297
Export	27	33	71	223	206	208	512	98	74	80	1150	78	300
Export-import	-587	-467	-714	-779	-1982	-360	15	-189	-838	-271	1001	-125	80
Beef													
Output	785	717	716	745	771	805	710	635	562	522	591	611	555
Import	50	42	16	42	24.6	8.7	0.4	2.0	0.00	3.7	5.2	3.7	5.0
Export	37	41	40	48	49	64.4	67.4	57.6	57.4	107.8	92.5	117	136
Export-import	-13	-1	24	6	24.4	55.7	67	55.6	57.4	104.1	87.3	113.3	131
Pork													
Output	2532	2226	2575	2657	2430	2601	2675	2500	2419	2600	2832	2538	2500
Import	55	115	60	49	48.5	49.6	76.6	52.9	41.3	58.7	58.6	124	112
Export	20	20	33	50	154	220	152	144	87.6	86.7	251	209	176
Export-import	-35	-95	-27	1	105.5	170.4	75.4	91.1	46.3	28	192.4	85	64

Source: own calculations on the basis of Central Statistical Office data for years 1992-2005 and Ministry of Agriculture and Rural Development

However, Poland is not making progress in improving food security, particularly in crops. Beef production security is worse than 15 years ago because production has decreased from 944,000 tons in 1991 to 555,000 tons in 2005. Polish agricultural production has slowed and output has stagnated and fluctuated widely in the transition period. However, food production is sufficient for Poland because exports have increased. In many other countries agriculture is not developing well and poverty and food insecurity are major problems [Alexandratos 1999].

## Conclusions

This paper has explored the issue of food safety in Poland during the integration process. The conducted analysis have confirmed that Poland has improved food safety, what was the result of the European Union adjusted processes. The quality of food has improved. The percentage of disqualified samples in surveyed samples of all analysed commodities has decreased. This process is particularly visible in milk, meat and non-alcoholic beverages analysis. Moreover, the concentration of caesium 137 has decreased in food products.

The European Union integration has forced Polish food processing plants to improve their sanitary conditions. All processing plants, except small dairies, have improved their sanitary standards. These improvements have resulted in better food safety in Poland.

The analysis has shown that the import of wheat has played an important role in Poland. The process started in 1992 and is still ongoing. Increased reliance on European Union imports may increase domestic price volatility. This may lead to profitability crisis for producers and national food insecurity. This market needs policies to reduce price volatility and to ensure a continuous supply of wheat for domestic use. Countries which import more than they export are concerned about price volatility on the international markets. Interestingly, the export of beef and pork helped to improve the financial situation of farmers and the balance was rather profitable for Poland.

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