

FOOD CONSUMPTION AND SAFETY INCIDENTS IN ROMANIA

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The present paper proposes an analysis of the Avian and Swine Flu's effects on meat consumption in Romania. The intense media coverage of the two epidemics, the considerable funds allocated to population vaccination and disease eradication, the duration of the outbreak make the two diseases comparable in point of duration and spreading. The research highlighted a major effect of the Avian Flu on poultry meat consumption on the Romanian market, although the shock was a temporary one, as poultry meat consumption came back to its initial values in a short period of time. The Swine Flu didn't have a significant impact on the number of animals or on pork consumption. Both epidemics led to important financial losses. The sums allocated for disease eradication came from government contributions or from financial aids provided by the World Bank or the EU.

Keywords: food, consumption, safety, incidents

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Introduction

Local food production has lately been affected by a number of events belonging to the category of food safety incidents. Food safety is a concept according to which a prepared and/or consumed food product must not harm the consumer. The terms associated with food safety are danger and risk. Food safety is connected to danger occurrence and does not include other human health aspects. A food safety danger may be a biological, chemical or physical agent present in the food product or a certain state of the product, which may have a negative impact on the consumer's health. The risk represents a combination of danger occurrence probability or danger exposure and the seriousness of the injury/disease, which may be caused by an event or by the exposure to an event. The notification represents a written document addressed to a competent authority in view of informing it about certain actions that were performed or are going to be performed, or a document written by the supplier by means of which he announces the people from the network in which the non-compliant/potentially unsafe products were distributed, that they must withdraw the respective products from the market.

Product withdrawal from the market represents any measure by means of which a potentially unsafe product is prevented from entering the market in the distribution chain. In the food domain, all types of products, which are delivered by suppliers or obtained in own production, can be withdrawn. Product recall represents any type of measure whose purpose is the return of a product that was already given to the end user. Both measures are applied when the product that is going to be marketed or that is already on the stores' shelves presents any type of nonconformities and/or has a harmful potential for the consumer. The recall involves communication with the end user. The withdrawal/recall time represents the time period between making the withdrawal/recall and finishing the action.

The legislation in the food safety domain in Romania is aligned with that of the European Union (EU), ensuring a high consumer safety and health protection insurance. The EU officials support the European consumers by means of the legislative framework and of some market surveillance bodies, associated with the national systems of the member states.

Materials and methods

The research used official statistical data offered by the European Union (Eurostat database, RASFF Portal), Romania (the National Institute of Statistics), FAO (FAO Stat database), WHO or OIE, which have been adequately collected, processed and interpreted. The results obtained were compared to the data from the specialty literature, scientific articles and treatises of human or

veterinary medicine. The EU, Romanian government or government body official press releases were useful in understanding and analysing the collected statistical data. The media information were cautiously used and we used only verifiable sources.

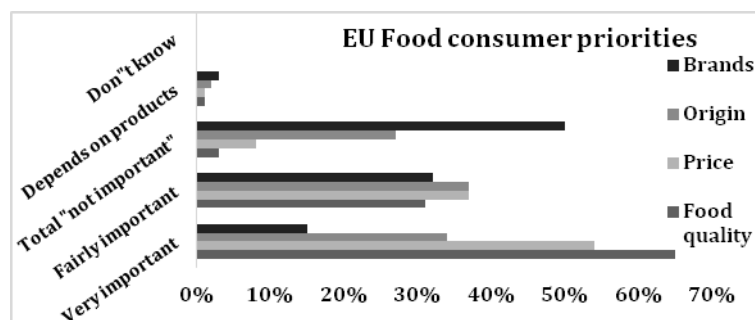


Figure 1. EU Consumers' priorities in buying food
(Source EC - Euro barometer, 2012)

The survey regarding the Europeans' attitudes towards food security, food quality and the countryside, carried out by TNS Opinion & Social, at the request of the European Commission (EC), on a sample of 26,593 respondents, leads to interesting information regarding food quality perception and importance for the European consumer. Thus, the quality and the price are important criteria in point of percentage in food purchase decisions, being appreciated by 96% and 91% of the respondents. The origin or the brand of the product, although taken into account at the moment of the purchase, are less important as compared to the previous criteria (figure 1). For most European citizens, the quality of the food products is the most important factor in the purchase process, the great majority (96%) considering it important (31%) or extremely important (65%) (Figure 2). For 10% of the Romanian consumers, quality perception is a very important criterion when purchasing food, exceeding the European average (EC – Eurobarometer, 2012).

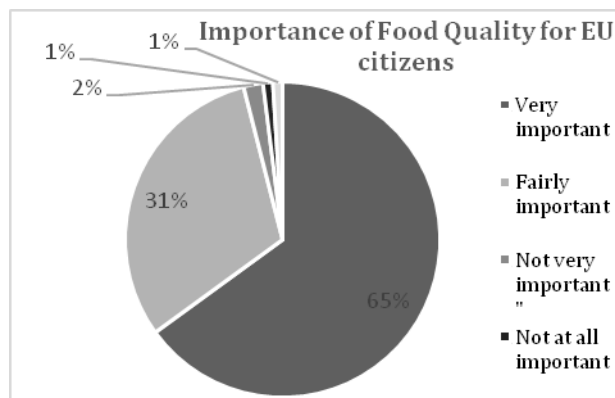


Figure 2. Food quality perception for European consumers
(Source EC - Eurobarometer, 2012)

Another useful tool in ensuring the quality and safety of the food marketed on the Community market is the Rapid Alert System for Fodder and Food (RASFF). Thus, in 2014, there were 231 products withdrawn from the Community market, their distribution being restricted by the notifying country.

The situation of the recall and withdrawal products from the Community market between 2014-2015 is presented in table 1. The products frequently eliminated from the market are:

- ◆ Fruits and vegetables, affected by the presence of some chemical (pesticides, insecticides), microbiological (mycotoxins) contaminants or by the infection with dangerous microorganisms;
- ◆ dietetic foods, food supplements, fortified foods, refused for the use of unauthorised substances or inappropriate treatments;
- ◆ food contact materials (there frequently appears food contamination by means of alloying/main component migration from the packaging material)

- ◆ animal products (meat, poultry meat, fish) – the presence of some pathogenic microorganisms or of some chemical or microbiological pollutants.

In a top of the markets on which the most products were refused, Romania is on the last places. Consequently, in 2014, only one product batch was withdrawn from the market – sunflower seeds with a level of aflatoxin above legal limits, but there weren't any product recalls. Customs control was efficient or the market assessment measures were too permissive.

Food safety incidents on the Romanian market

The last few years recorded a series of food safety problems at the European level, which also affected the Romanian food market. The most known food incidents were the epidemics that affected the meat or milk production sector, animal products. The potential for the transmission of germs to the human consumer increased the reluctance regarding the consumption of these products. Having wide media coverage, sometimes without a thorough scientific basis, in many situations commercial or rating increase were followed and not scientific elements. The unadvised consumer was influenced by this information, which led to a decrease in consumption and to desperate attempts of some company managers to save their business, including direct consumption of the incriminated foods.

Table 1. Recalled and withdrawn food products 2014-2015 (source EC -RASFF Portal, 2015)

Products	2014		2015	
	Recall	Withdrawal	Recall	Withdrawal
alcoholic beverages	3	1	1	0
bivalve molluscs and products thereof	9	34	2	12
cephalopods and products thereof	1	2	0	0
cereals and bakery products	19	36	8	9
cocoa and cocoa preparations, coffee and tea	5	11	4	4
compound feeds and feed	1	29	3	6
confectionery	6	12	3	5
crustaceans and products thereof	1	9	0	1
dietetic foods, food supplements, fortified foods	25	79	5	17
eggs and egg products	2	1	0	0
fats and oil	1	2	0	1
fish and fish products	18	66	7	21
food additives and flavouring	0	14	0	3
food contact materials	16	47	2	9
fruits and vegetables	34	93	13	17
gastropods	0	3	0	0
herbs and spices	6	35	6	4
honey and royal jelly	0	1	0	0
ices and desserts	2	1	0	0
meat and meat products (other than poultry)	13	39	8	10
milk and milk products	24	22	9	9
non-alcoholic beverages	4	7	0	1
nuts, nut products and seeds	8	27	7	9
other food products	7	11	1	3
pet food	0	7	0	2
poultry meat and poultry meat products	10	47	2	10
prepared dishes and snacks	10	9	3	2
soups, broths, sauces and condiments	6	9	1	2
wine	0	1	0	0
Total	231	655	85	157

The most affected sector was that of animal production, in which there were more frequent incidents (food frauds, the presence of some contaminants, the contamination with pathogenic microorganisms), followed by the meat or milk industry. The potential of some viruses to infect humans increased the impact of these critical situations.

The poultry sector

Poultry raising is one of the most dynamic sectors of domestic meat production, which, during the last years, succeeded in shrinking the gap recorded in the period 1999 – 2000 as compared to Community competition. With over 1.5 million small farms, the great majority being subsistence farms, representing almost 70% of the total number of farms recorded at the EU level, the local avian sector has the greatest number of units with under 5,000 broilers and only 1.5% of the total number of large farms. The great development recorded by the sector, which in 2012 succeeded in balancing poultry meat foreign trade is due to some modern units that implemented an integrated production system (with fodder factories, poultry raising farms, processing units and distribution systems) (Van, 2014). The technical performances recorded by the sector in 2006 placed the local poultry sector on the fourth place in the world and on the third place in Europe (AM PNDR, 2012). Almost 50% of the local poultry market is owned by companies such as Transavia, Ave Grup, Avicola Buzău or Avicola Bacău. The increase in end product added value for these companies is achieved not only by slaughter, packaging and conservation processes of the poultry raised in own farms, but also by means of secondary processing and some processed meat products or of ready to eat/ready to meal products. The most important poultry companies developed own brands, differentiated for poultry meat production and highly processed products.

The poultry sector was affected by a number of incidents, which reduced the growth rate and the number of poultry, which reached in 2013 the level from 2003 (MADR, 2014). The 2010 subsidy reduction for the poultry sector producers (1.6 lei/slaughtered head for poultry bigger than 2 kg.), in accordance with the Common Agriculture Politics, slowed down the development of the sector (Dimache, 2010).

A synthesis of the data regarding poultry meat production and consumption in Romania is presented in table 2.

Table 2 The Romanian poultry sector (Source NIS, 2015)

	2005	2010	2013
Livestock (mill. heads)	86.55	80.84	79.44
Production (1000 to)	292	287.47	345.82
Price (Euro /100 kg live)	98.32	92.11	113.37
Consumption (Kg/year capita)	21.5	18.2	17.5
Export Livestock	90	1608	20591
(000 euro) Poultry meat	6904	84999	148066
Import Livestock	12094	25178	43811
(000 euro) Poultry meat	105903	120109	129303
Eggs (mill. pcs)	6,522	6,398	7,381

Egg production is mostly for domestic consumption, covering almost 90% of the demand on the market. Romania imports large quantities of livestock (especially from the Netherlands), which are afterwards raised in specialised farms. The imports may represent potential risk factors for the local livestock; this is why the year 2015 led to restrictions regarding livestock import from risk-prone areas (NSVFSA, 2015).

Food Safety incidents in the Romanian poultry sector

The global animal epidemics affected the domestic poultry sector, causing considerable losses to Romanian farmers and a significant decrease of poultry meat consumption. Although the epidemics became manifest on a short period of time, the impact on the consumer was an important one. The main critical situations, which have been recorded lately in the poultry sector from Romania are presented in table 2. The period 2005 – 2006 was characterised by the virulent manifestation of the Avian Flu. 20 counties from Romania and 1 million livestock were affected. The epidemics led to an action plan drawn up by the authorities (NSVFSA, 2007) and an aid plan supported by the World Bank, worth approximately 30 million euros (World Bank, 2013). The action plan led to the eradication of the epidemics, which after 2007 only became manifest sporadically, being affected only the regions that

were transited by migratory birds (NSVFSA, 2014). The last Avian Flu notification, transmitted to the World Organisation of Animal Health OIE (2015) targeted a pelican colony from the Danube Delta, without affecting the poultry.

Table 3 Major disruptions in the Romanian poultry sector (source NSVFSA, 2014; OIE, 2006, World Bank, 2013)

Hazard	Year	Outbreaks/place	Impact on sector
Newcastle disease	2004-2008 2008-2014	179 2	55,69% EU 26,57% of total world outbreaks
Avian Flu	2005-2006 2007- 2010 2015	183 3 1	Total losses 193 million euro Fiscal costs 56 millions euro Losses to other industries 50 millions euro
<i>Salmonella Enteridis</i>	2013	Avicola Călărași	37000 broiler affected 53 tonnes poultry meat- incinerated ≥ 100 million euro losses
Altered meat	2013	Selgros/Avicola Călărași	57,2 tonnes poultry meat withdrawn 60 mill euro losses

If the Avian Flu becomes only sporadically manifest at present in Europe, becoming endemic only for wild birds from Italy, lately the pseudo-avian influenza has become widespread the Newcastle disease). It affects the world and Romanian poultry farms. Out of the 681 outbreaks recorded globally, in Europe there have been 325 affected farms, out of which more than half were recorded in Romania during the period 2004 – 2008. Although it can be transmitted to humans, it doesn't lead to the death of the infected people. In the case of birds, the epidemics is extremely virulent, with a high degree of morbidity, with a death rate of over 80%, affecting the number of livestock, the meat and egg production and the trade with these products because of the restrictions imposed (NSVFSA, 2015). In the period 2008 – 2014 there were only two farms where the epidemics became manifest. The incident from 2010 affected only the population from the county of Brașov, with 300 dead poultry, whereas the 2014 epidemics led to the death of over 63,000 poultry from a farm in the Ialomița county.

The poultry meat infestation with *Salmonella Enteridis* became manifest in 2013, the climax of the crisis being recorded in March and October-November. The identification of 37,000 *Salmonella* contaminated poultry at a poultry farm from Călărași led to the slaughter of the 37,000 poultry and the incineration of over 53,000 tonnes of poultry meat (NSVFSA, 2013). The estimated losses exceed 100 million euro.

Table 4. The results of the survey regarding altered poultry meat and food safety (Source IRES, 2013)

Question	YES	NO	I don't know/I don't answer/I don't have sufficient information
Have you heard about the altered poultry meat scandal?	87%	13%	0
Do you know the name of the meat producer?	9%	65%	13% (I know the region of origin but I don't know the producer)
Have you changed your poultry meat consumption habits?	33%	The refusal to purchase poultry meat from butcher shops (43%) Higher awareness at purchase (26%)	
Are you interested in food safety?	87%	13%	-
Do you have a good opinion about the NSVFSA's activity?	77%	90% heard about NSVFSA 60% consider that it performs its duties well 90% would confidently call for the services of the institution	

The altered meat scandal began after the refusal of some inappropriate meat batches by Selgros, in the period September – October 2013. The delivery was made by some units Avicola Călărași. There were also some tax evasion and corruption suspicions of the officials (Severin, 2013; Alexe, 2013). The high media coverage and consumption reduction are also highlighted by the study carried out by the Romanian Institute for Strategy and Evaluation (2013), by means of which the Romanians' perception about the events connected with the altered poultry meat, the food

consumption behaviours and the degree of information regarding food safety were assessed. The survey was conducted in the period 2-6 November 2013, immediately after the scandal started. The survey was made by phone and the method used was CATI, a representative national multi-layered sample made up of 1,493 individuals aged over 18, with a maximum tolerated error of $\pm 2,5\%$ (IRES, 2013).

The impact on poultry meat consumption

The results of the survey, schematically presented in table 3, highlighted a decrease in poultry meat consumption, in Romania's food network trust and in NSVFSA's activity. The impact of these food safety incidents are also stressed by the consumption and production trends presented in figure 3.

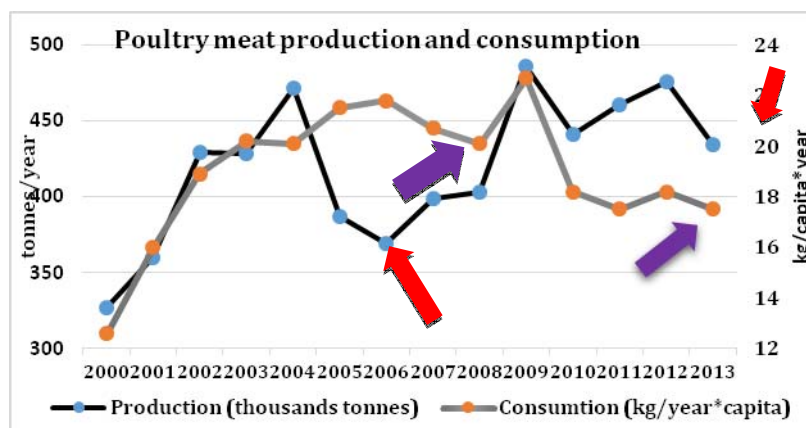


Figure 3. Poultry meat production and consumption data (Source NIS, 2015)

The presented incidents mainly affected poultry meat production, the impact on consumption being relatively delayed and cumulated with the financial crisis effects.

The pork sector

Pork is a type of meat that is traditionally consumed in Romania. A synthesis of the main indicators regarding pork production is presented in table 5.

Table 5. Pork production and consumption in Romania (Source NIS, 2015)

	2005	2010	2012	2013
Livestock (1000 heads)	6,662	5,387	4011	4054
Production (000 tonnes)	605	553	555	582
Consumption (Kg/year capita)	29.6	33.3	29.6	29.1
Import (000 euro) Livestock	15,541	59,712	91,309	98,638
Pork	314,405	314,925	266,336	277,029
Export (000 euro) Livestock	22,255,071	37,360,259	45,069,165	49,562,209
Pork	771	5,829	31,053	33,362

According to the data presented in the table, one may notice that the pig breeding sector goes through a period of crisis determined by the decrease in the number of pigs, without the proportional decrease in pork production, which compensated by a weight gain of the pigs' carcasses at slaughter. Romania imports important pork quantities and exports live pigs, because it doesn't have the necessary capacity and technology of the intensive weight gaining systems up to the optimum slaughter capacity. Pork import in Romania proves that this sector has a good outlet and measures must be taken to support and balance trade.

With the exception of the year 2010, in which maximum pork consumption was recorded, the trend goes towards stabilization or slight decrease, especially for economic reasons, because the price of pork or pork by-products is relatively high for the population's incomes. Romania is not at risk of

African swine fever at domestic or wild animals, such cases not being recorded. Beginning with 2007, there were no classical cases of swine fever because farm or household animals were vaccinated.

The classical swine fever (CSF) became manifest from 2001 and 2008 in Romania, eradication measures being taken by vaccinating domestic or wild animals and people with high risk of getting the disease.

The outbreaks situation is presented in figure 4. 'The epidemic peak was recorded in 2005, with 1508 outbreaks.

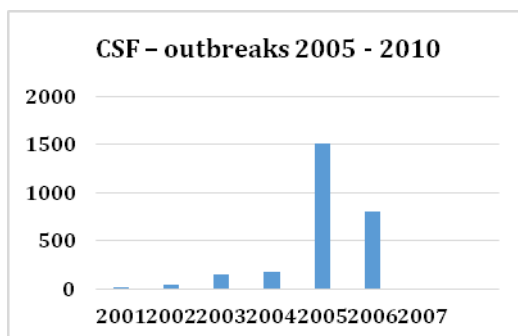


Figure 4. CSF outbreaks in domestic pigs 2001-2008 (Source NSVFSA, 2010)

The costs associated with the epidemic eradication are synthesized in table 6, the sums being allocated for population, domestic pig and wild boar vaccination, for surveillance and tests carried out among population in the period 2007 – 2010.

Table 6 CSF Surveillance, Control and Eradication Program - Historical Data (Source NSVFSA, 2010)

Year	National costs (euro)	Co- financed aproved/allocated (euro)	Other EC support measures
2007	23,800,000	5,250,000/ 5,250,000	7,000,000 marker vacc. 2,000,000 live conventional vacc.
2008	13,601,086	2,500,000 /254,428.54	
2009	16,109,028	2,500,000/2,500,000	
2010	249,259	1,200,000	
Total	52,950,643	11,450,000 /8,004,428	

Pork consumption evolution is presented in figure 5. The annual average consumption per inhabitant records an increasing trend in the period 2001 – 2008, reaching a maximum of 34.6 kg./inhabitant, after which we may notice a decrease of up to 29.1 kg. In 2013, mainly out of economic considerations.

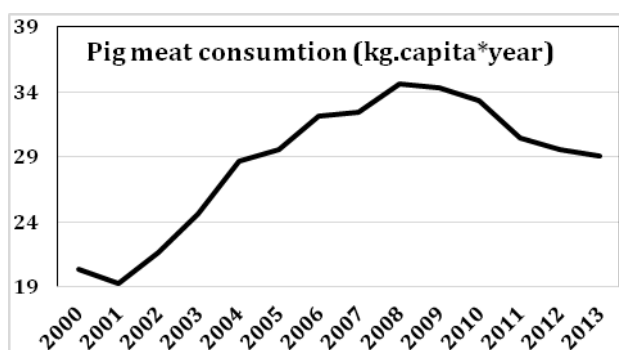


Figure 5. Pig meat consumption in Romania (Source NIS, 2015)

According to the data presented in the graph, there are no negative effects of the swine flu in pork consumption. The limited contact with the animals, the applied heat treatments, the measures taken by the officials led to a limitation of the media impact due to excessive promotion of the epidemic in the media.

Conclusions

The present paper performed an analysis of the poultry and pig sectors in Romania. Poultry meat and pork production, marketing and consumption from 2000 until 2013 were presented. Both sectors were affected by animal outbreaks, whose effects were different on meat consumption. The research revealed a great short-term impact of the Avian Flu on poultry meat purchase and consumption habits, whereas the swine flu presented an insignificant impact on consumption.

Both epidemics involved high costs in order to limit and eradicate the disease. The mass vaccination system and the pig breeding method limited the spreading of the epidemic, as compared to the poultry sector, in which the spreading of the disease could be controlled only by means of slaughtering the poultry from the contaminated areas.

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