

## **CONSUMPTION RISKS OF PESTICIDE-CONTAINING PRODUCTS**

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### **Abstract**

*The paper aimed to present consumption risks of pesticide-containing products. It is based on the statistical data provided by Ministry of Agriculture, Forests and Rural Development and National Institute of Statistics. The data have been processed into the following indicators: consumption of agricultural products, vegetable consumption, fruit consumption, meat consumption, the amount of pesticides used in Romanian agriculture and pesticide effects on consumer health.*

*During the analyzed period, the quantity of pesticide was decreased but the human health effects are worrisome.*

**Key words:** *consumption, agricultural products, pesticides, Romania.*

**JEL Classification:** A13, E2, Q10.

### **Introduction**

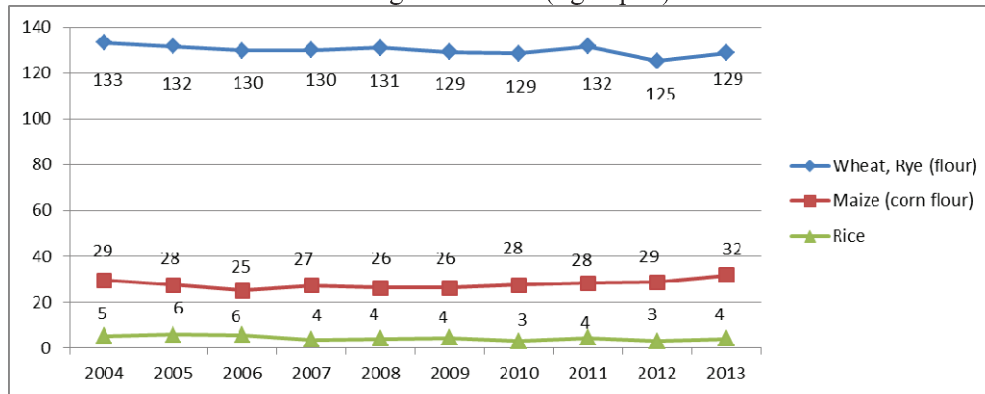
Nutritional requirement of each person varies by age, geographical location and activity. Nutrition has a fundamental role in human construction, this influencing each health and balance of each. A proper diet along with proper behavior ensures a healthy life. It is not important only what we eat, but when and how. Unhealthy food or inappropriately feeding mode produces health imbalances. On the market there are different types of products, some natural, other semi natural and semisynthetic, important is to know what to choose so health as not to have suffered.

#### *1. Characteristics of agricultural products consumption in Romania*

Food consumption of population reflects the standard of living. In Romania the biggest agricultural production is obtained at cereals. Foods used in big quantity are bread and potatoes. Analyzing the consumption of potatoes in the period 2004-2013 concluded that Romanians consume

around 100kg/year. Between fruit produced in the country, the main places are occupied by consumption of apples and plums, being located at considerable distance by consumption of sour cherry and cherry.

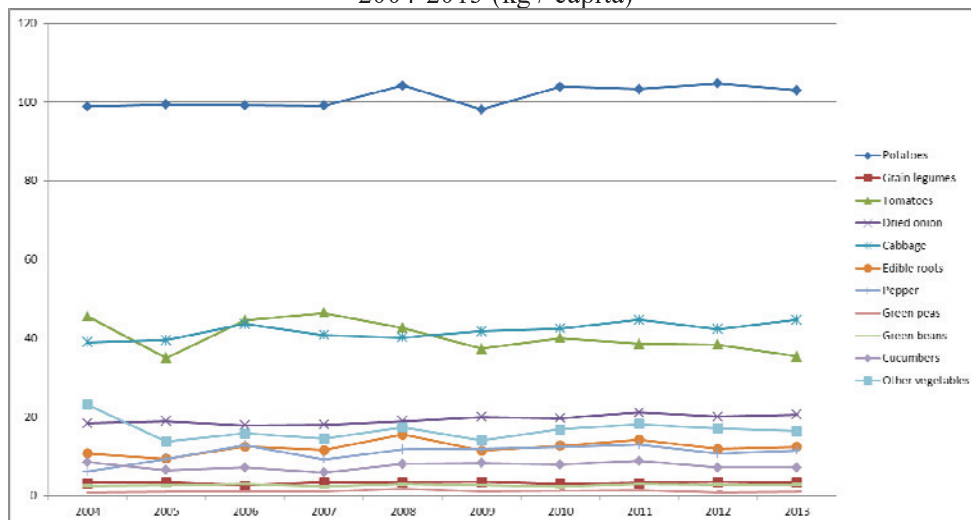
Fig.1. Evolution of the average annual consumption of products of the grain, during 2004-2013 (kg/capita)



Source: Tempo-online database, INS.

It is found (Figure 1) in recent years a slight reduction in the consumption of flour, average of consuming being 130 kg of flour annually/person. Corn flour consumption is relatively constant, the past two years is remarked increasing of consumption with 1-2 kg compared to average of last ten years. The quantity of rice remains constant in recent years, the average annual consumption for the analyzed period is 4 kg / person.

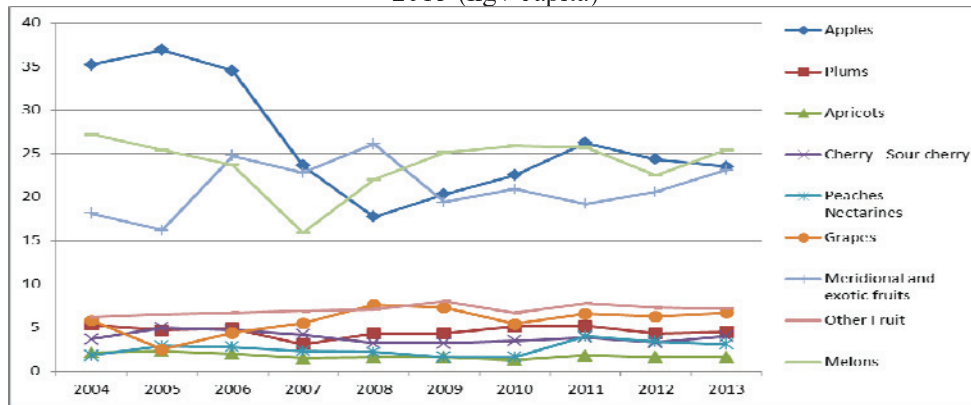
Fig.2. Evolution of the average annual consumption of vegetables, during 2004-2013 (kg / capita)



Source: Tempo-online database, INS.

The largest amount of vegetables used by the Romanian consumer is represented by potato (Figure 2), followed at considerable distance from tomatoes, cabbage and onions consumption.

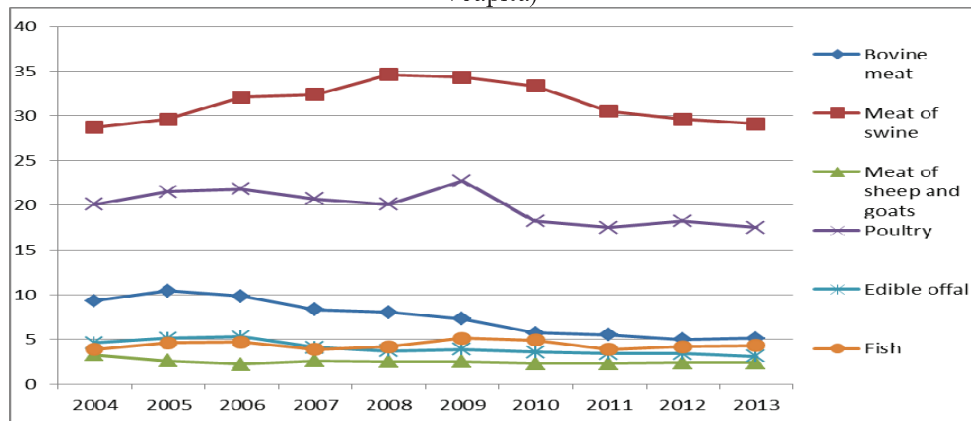
Fig.3. Evolution of the average annual consumption of fruit, during 2004-2013 (kg / capita)



Source: Tempo-online database, INS.

In the period analyzed, it was found that apples, melons and exotic fruits are among Romanian consumers' preferences (Figure 3). In last years the average apple consumption falls below the analyzed period, while consumption of melons, exotic fruit and grape is growing. The apricots, registered also ascendant consumptions in Romanians preferences, except years 2007 and 2013 when was recorded drought and production decreased.

Fig.4. Evolution of the average annual consumption of meat, during 2004-2013 (kg /capita)

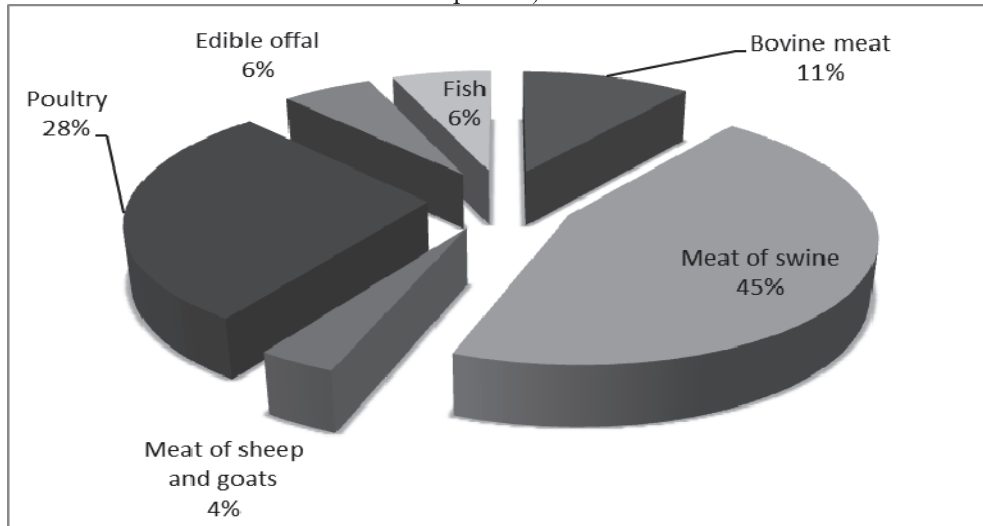


Source: Tempo-online database, INS.

Pork ranks first in terms of consumption of meat, followed by poultry consumption (Figure 4). In the last three years there has registered a

decrease in consumption of all types of meat, the largest drop being recorded in consumption of poultry meat.

Fig. 5 Evolution of average meat consumption during 2004-2013, (kg / person)

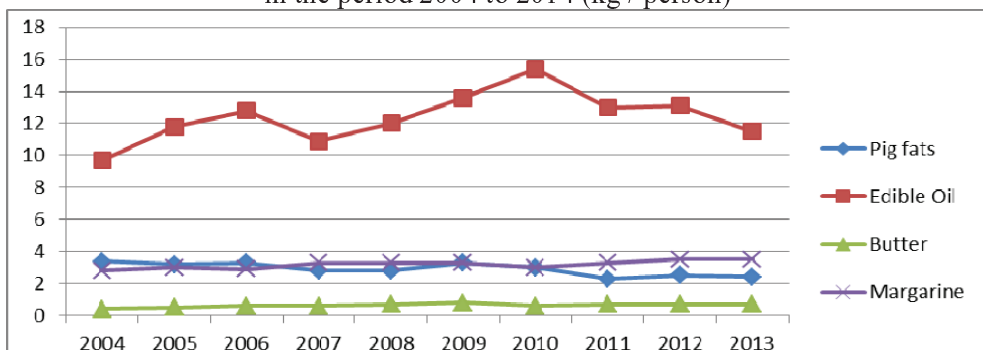


Source: Tempo-online database, INS.

It finds that in 45% of the meat consumed in Romania are pork, fish consumption and edible offal having equal percentage in Romanians' preferences.

Meat-eaters ingest 10-20 times more pesticides and herbicides residues in vegetables than vegetarians, because the animal fat that stored these chemicals.

Fig. 6. Evolution of vegetable and animal fat consumption (gross weight) in the period 2004 to 2014 (kg / person)

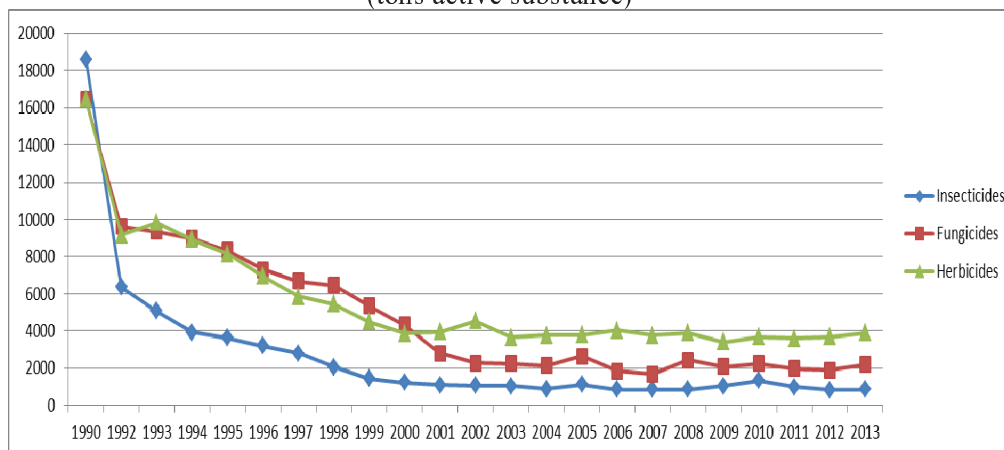


Source: Tempo-online database, INS.

The edible oil is the most used fat in Romanians food, the largest amount of oil being consumed in period 2010-2011 (Figure 6). Pig fats and

margarine registered approximately the same value during 2004-2014, but both have negative influence to human health.

Fig. 7. The quantity of pesticides used in agriculture, during 1990-2013 (tons active substance)



Source: Tempo-online database, INS. \*there is no data for the year 1991

The largest amount of pesticide was used in 1990; since 2001 the amount applied is relatively stable (Fig. 7). It finds that since 2001 the herbicides are used in the largest quantity.

## 2. The effects of pesticides used in agriculture on consumer health

Due to increase of agriculture and pest adaptation to existing substances, was needed of new substances, so after year 1944 has developed the industry of synthetic pesticide. They are a source of toxic risk due to persistence in soil, plants and organisms.

Pesticides are chemicals products used in combating pests plants and for ensure a good storage of agricultural products, as well as for control of biological vectors of human or animal diseases. Pests include microbes, plants and animals in competition with humans for food, who destroy property, diffuses diseases or produce calamity.

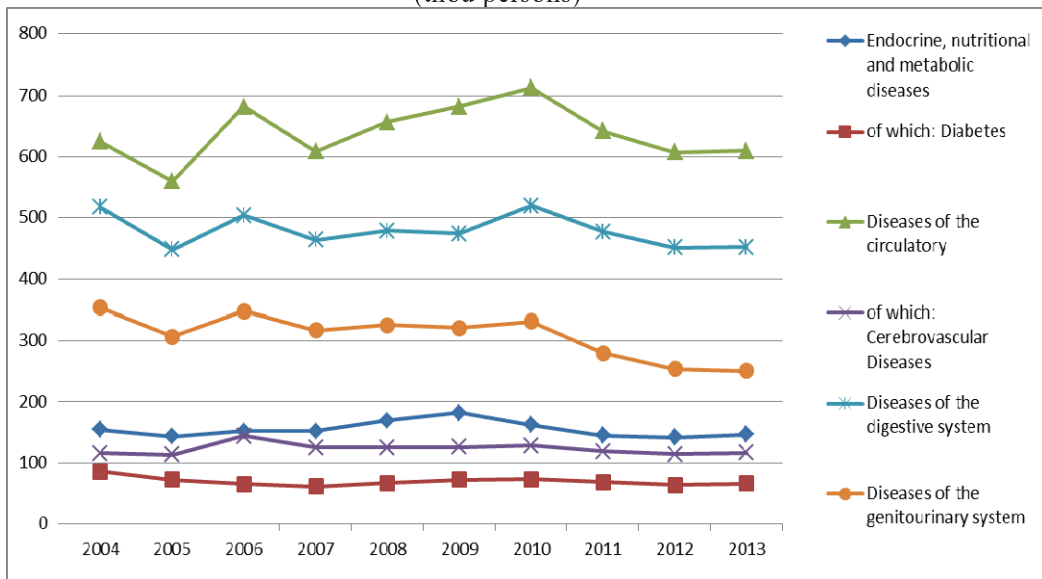
Pesticides are substances or mixtures of substances that contain biologically active ingredients against pests. The ingredients biologically active are, in general, toxic substances with potential to damage the environment. Many pesticides are toxic for humans. For these reasons production, packaging, storage, transport and use of pesticides are regulated by law.

After an analysis of MARD in 2011 was concluded that lemons, oranges, grapefruit, table grapes, apples, lettuce and spinach are the most contaminated with pesticides (Table no. 1).

Table no.1 Analysis carried by MARD at fruit and vegetables in 2011

Name	Number of samples analyzed	Number of samples with pesticide residues	Percentage of local products that present pesticide residues	The pesticides detected in vegetables and fruits
Lettuce	76	20	75%	Clorotalonil, pirimetanil, bifentrin, ciprodinil si fenhexamid.
Tomatoes	185	41	68.29%	
Spinach	53	10	100%	
Grapefruit	41	41	-	Clorpirifos, pirimetanil, ortofenilfenol, ciprodinil si boscalid
Lemons	30	27	-	
Oranges	60	40	-	
Grapes	78	42	28.79%,	
Apples	207	73	28.79%,	Clorpirifos-metil si pirimifos-metil
Wheat	91	10	100%( all samples which was analyzed are from domestic production)	
Rye	14	1	100%( all samples which was analyzed are from domestic production)	

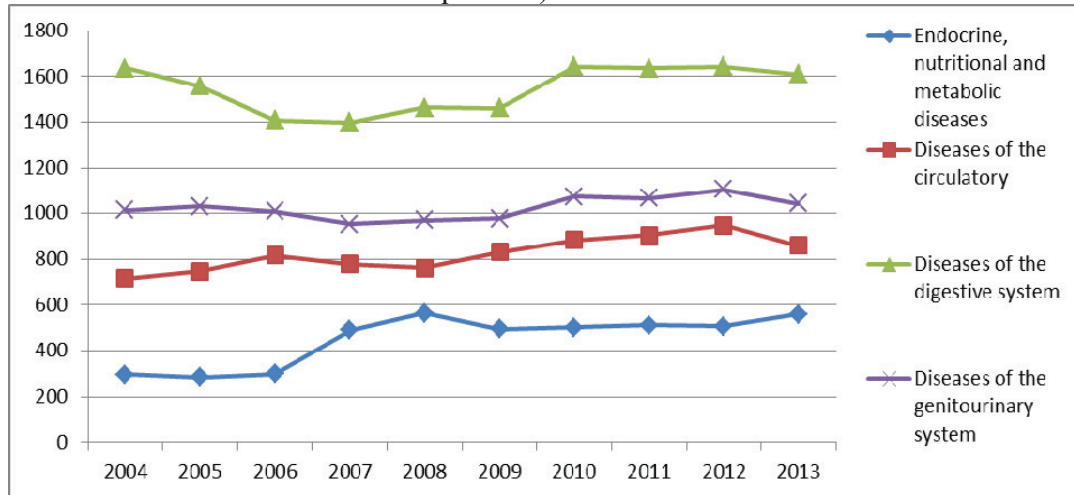
Fig. 8. The number of patients out of the hospital, in the period 2004-2013 (thou persons)



Source: Tempo-online database, INS.

Of the total diseases, the first places are occupied by diseases of the circulatory, digestive and of the genitourinary system (Figure 8).

Fig.9 New cases of sick persons registered during 2004-2013 (thou persons).



Source: Tempo-online database, INS.

In the last four years was an increase in the number of new cases diagnosed with diseases of the digestive and circulatory (Figure 9), mainly due to the consumption of foods that the body does not tolerate. Cardiovascular diseases, tumors, digestive diseases, respiratory diseases and accidents are, in this order, the five main causes of death nationwide, according to a report released by the College of Physicians in Romania (CPR).

*The effects of pesticide utilization:*

- modify DNA sequences, initiating the development of cancer,
- increasing the amount of sugar and fat in women blood,
- weight gain at women,
- increase in size and imbalances in the liver, that must work more for clean the toxic substances from body,
- weight loss (at men),
- heightened sensitivity of the kidneys,
- at pregnant women, American researchers at the University of California at San Francisco found that pesticides increased the gene activity associated with abnormal weight babies at birth,
- increasing infant mortality rate,
- colic, nausea, vomiting and diarrhea,
- produce sensory disturbances and sensitivity, neuritis, seizures, paralysis and mental disorders,
- determine hepatic manifestations - kidney, heart rate and respiratory disorders, skin changes and changes in blood,

- biochemical enzymatic and metabolic disorders,
- triggering the launch of overweight and obesity, which favors the onset of hypertension, diabetes and cardiovascular disease.

Experts in the field say the genes susceptible to toxic residues plays a central role in reproduction and are found in steroid producing tissues.

### **Conclusions**

The price and appearance do not evidence the quality of a product; most often the visually perfect products hiding defects of quality.

In general, extra-season products contain substances that favor the growth of them.

A balanced diet and sport helps people to maintain their healthy. Romanians consumers use considerable amounts of flour and potato products.

Fruit consumption is based mainly on apples and plums, but after analyzes carried by MADR to detect the produce with high contents of pesticides, the apples contain the highest amounts of pesticides.

The consumption of own agricultural production can be a solution when try to reducing the risk of pesticide-containing products, but if the householder applies pesticides in his small farm, and these are not applied in adequate quantities can have negative effects with a higher degree than if they buy those products from a farm unit who applies pesticides in controlled quantities.

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