

## ARE THERE GENETICALLY MODIFIED FOOD ON THE ROMANIAN MARKET?

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### Abstract

The Romanian market is full of soybean products for instance: soy milk, soy flower, tofu, or raw soybean in different shapes and sizes. Although our country prohibited the genetically modified soybean cultivation since 2007 the others countries of the world are still cultivating it. The conventional soybean cultivated by Romanian farmers is exported, and in exchange we are importing genetically modified soybean. According to the study of the market, there aren't genetically modified soybeans products on the market meaning that the imported soybeans are used for animal feeding and the information stops there: we are not informed that the animal who's milk or meat we are eating was feed on genetically modified organisms. During the study I have used 60 different soybean products meaning: 9 drinks, 2 bars, 5 vegetable pastes, 6 raw soybeans products, 4 soybeans oils, 4 types of soybean sauce, 10 types of tofu, 5 types of desserts, 4 soybeans specialties, 4 soy beans products, 3 soybeans supplements, 4 soybeans cosmetics. The research targeted the labeling interpretation, because according to Government Decision number 173/2006 the producers are forced to inform the consumer if the product is genetically modified or contains genetically modified ingredients. During the research I have noticed that most of the soybean products come from ecological or biological agriculture and contain the information: this product doesn't contain genetically modified soybean. This means that consumers are afraid of the genetically modified products and the producers use this information to convince them to buy soybean product without concerning for their health.

**Key words:** genetically modified, soybeans, market , Romania

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For more than ten years, genetically modified crops are cultivated worldwide for their increased yield, smaller production costs, higher quality, etc. In our country there are legally cultivated only 5 varieties of genetically modified corn according to the Romanian Official Varieties of Crop Plants Register, 2011 edition, while the genetically modified soybean production was stopped in 2007. Worldwide genetically modified soybean is the most cultivated crop, probably because of the market demand. Soybean products are found in a wide range on the Romanian market, whether is raw or as an ingredient. Romanian annual loss is almost 1 billion euro because it's not cultivating genetically modified soybean, the national production potential being about two million tons, has declared in a press conference, the Minister of Agriculture Valeriu Tabără. "Romanian annual import of soybean from Brazil, U.S.A. and another countries is about 500 000 tons, and it is all produced only through biotechnology. We are currently attempting to get the approval for genetically modified soybean cultivating starting 2012 because the economical loss is significant. Among all genetically modified

crops cultivated worldwide, only four rule the market: soybean, cotton, corn and rape. Regarding the cultivated surface, soybean is more spread. In 2009 more than three quarters (77%) from the 90 million hectares cultivated with soybean worldwide were genetically modified, while for cotton, almost half (49%) from the 33 million hectares were genetically modified. More than one quarter (26%) from the 158 million hectares cultivated worldwide with corn were genetically modified and 21% of the 31 million hectares of rape cultivated worldwide were genetically modified (James, 2009). This study aims to identify the products than contain genetically modified soybean.

### MATERIAL AND METHOD

The used material is represented of soybean products. 60 soybean products were used in the research, of which: nine beverages (Bio soybean beverage with chocolate Provamel, Bio natural soybean beverage Provamel, Bio soybean beverage with strawberries Provamel, Bio soybean beverage with vanilla Provamel, UHT soybean beverage with cocoa flavor, calcium and vitamin,

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Bio soybean beverage with vanilla Auchan, Natural soy milk SanoVita, Strawberry soy milk So Good, Vanilla soy milk So Good), two bars (Soy bar with banana powder, soy bar with berries Landgarten), five types of vegetable paste (Campofrio vegetable paste, Hame vegetable paste with mushrooms, Bucegi vegetable pate with pepper, Vegetable pate Cora, Vegetable paste Winny), six raw soybean products (Textured protein from soybean Darling slices, Romfood soybean slices, SanoVita soybean vegetable schnitzels, SanoVita soybean granules, SanoVita soybean cubes, Solaris soybean cubes) four types of soybean oil (Cardinal soybean oil, Extravirgin soybean oil 2-E-Prod, Natural Marigold oil based on soybean oil Mayam, Manicos soybean oil), four types of soybean sauce (Fuchs soybean sauce, Blue Dragon dark soybean sauce, Maxims dark and light soybean sauce), ten types of tofu (Fitto-Fitt: cream tofu, kneaded tofu, Cassandra tofu, Sweat tofu, salted tofu, smoke flavor tofu, spicy tofu, vegetable tofu, olive tofu, mushrooms tofu) five desserts (Danone soybean fermented extract dessert with cereals, Provamel soybean and vanilla dessert, Provamel soybean coffee flavor dessert, Provamel soybean and caramel dessert, Alpro soybean and chocolate dessert), four soybean specialties (Fitto-Fitt soybean meatballs with dill, Fitto-Fitt cordon vert with tofu, Fitto-Fitt vegetable grilled minced rolls and vegetable meatballs), four soy beans products (Landgarten bio soy beans in chocolate with milk, Landgarten bio soy beans in tamari sauce, Landgarten bio soy beans in dark chocolate with milk and yogurt, SanoVita soy beans), three supplements (Pro Natura soybean supplement, Soybean protein chocolate flavored, Fitne soybean supplement) and four cosmetics (Logona antiwrinkle cream with soybean oil, Bema soybean tonic night cream, Gerocossen revitalizing soybean based shampoo, Logona soybean shampoo). The research concerned the labeling interpretation because according to Government Decision 173/2006 the producers are forced to inform the consumer if the product is genetically modified or contains genetically modified ingredients. The research material is also based on the Agriculture and Rural Development Ministry official data regarding the soybean production, import and export.

## RESULTS AND DISCUSSIONS

The labels must contain objective information which must specify if an alimentary product or fodder consists, contain or is produced from gmo's. Clear labels, regardless the possibility to detect the DNA or the protein produced after de genetic modification in the final product, meet the demands expressed of the greatest majority of consumers in many surveys, facilitates the informed choice and eliminates the risk of mislead the consumers regarding the fabrication or

production method. Also, the labels must provide information the characteristics or properties through which the alimentary product or fodder differs from conventional products equivalent regarding the composition, nutritional value or nutritional effects, intended use of the alimentary product or fodder and the health consequences of certain population categories, as on any characteristics or properties that can raise ethical or religious issues. Alimentary products that contain genetically modified organisms must not:

- a) have side effects on human or animal; health and on the environment;
- b) mislead the consumers.
- c) be different of the alimentary products that it intend to replace to an extent that their normal consumption would be disadvantaging for the consumers from a nutritional point of view.

No person can put on the market a GMO destined to be utilized as an alimentary product, unless it is authorized and meets the authorization conditions. Because our country market soybean demand is high about 500 000 tons and the domestic production is very small (*tab. 1*) most of the soybean from the Romanian market is imported. Although our country produces a small amount of soybean compared to the national potential (*tab. 2*) yet according to the Agriculture and Rural Development Ministry official data our country has exported in 2010 – 25 046.2 tons of soybean and has imported 14 238.5 tons (table 3) and the only plausible explanation is that we import genetically modified soybean and we export conventional soybean for the benefit of foreigners. The research I have made on the soybean products existing on the market have concluded that there aren't alimentary products labeled as being genetically modified or containing a genetically modified ingredient, moreover the greatest majority contains the specification that the product doesn't contains genetically modified soybean or comes from the biological or ecological agriculture. This fact shows that most people doesn't trust genetically modified organisms, at least in our country because the specification "this product doesn't contains genetically modified soybeans" isn't necessary according to the law and has the purpose to convince the consumer that the alimentary product doesn't puts his health in danger. The people lack of trust in genetically modified organisms is based on the lack of public information and also the lack of the studies that prove that genetically modified organisms have no long term effects on human and animal health or environment. This is the reason why France has prohibited recently the cultivation of any genetically modified variety.

Table 1

**The surface and production of crops in our country**

Specification	Total surface (thousand hectares)				Total production (thousand tons)			
	2007	2008	2009*	2010**	2007	2008	2009*	2010**
Cereals – total, d.c.	5129,2	5210,7	5282,4	5066,4	7814,8	16826,4	14873	16496
Grain + rye	1987,1	2123,3	2164,3	2060,5	3065,0	7212,4	5235,5	5727,4
Barley	363,8	394,0	517,5	506,1	531,4	1209,4	1182,1	1262,7
Oat	208,7	200,4	202,7	194,3	251,6	382,0	295,8	331,1
Corn beans	2524,7	2441,5	2338,8	2289,9	3853,9	7849,1	7973,3	9085,2 (1)
Rice	8,4	9,9	12,9	13,1	27,5	48,9	72,5	89,6 (1)
Sunflower	835,9	813,9	766,1	823,6	546,9	1170,0	1098	1454,8
Rape oil	364,9	365	419,9	579,5	361,5	673,0	559,6	920,6
Soybean	133,2	49,9	48,8	64,1	136,1	90,6	84,3	143,3 (1)
Sugar beet	28,7	20,4	21,3	24,4	748,8	706,7	816,8	792,5 (1)
Potatoes total	268,1	255,3	255,2	243,9	3712,4	3649,0	4004	3333,8 (1)

Source: Romanian statistical Directory, edition 2009

\*date NSI \*\* operative data ARDM (1) estimations

Table 2

**Soybean production dynamics data - 2001-2010 (cultivated surface; average production; total production achieved)**

Specification	M U	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Surface	mii ha	44,8	71,8	128,8	121,3	143,1	190,8	133,2	49,9	48,8	64,0
Average production	Kg/ha	1623	2033	1746	2462	2186	1807	1021	1815	1726	2294
Total production	mii to	72,7	145,9	224,9	298,5	312,8	344,9	136,1	90,6	84,3	146,9

2001 - 2008 Date NSI – Romanian Statistical Directory; 2009 - Date NSI – The vegetable production of the main crops in year 2009; 2010 - Date ARDM - Statistical report AGR 2B

Table 3

**Soybean import and export**

Year	Import quantity (tons)	Import value (thousand euro)	Exported quantity (tons)	Exported value (thousand euro)
2007	68.558,67	23.770,3	22.091,12	4.705,1
2008	94.360,25	38.000,1	38.988,63	13.509,5
2009	20.761,90	7.901,1	10.445,12	3.040,1
2010*	14.238,5	5.534,7,8	25.046,2	9.008,3

Data source: National Customs Authority and NSI

\*period January – November 2010

**CONCLUSIONS**

In our country now it is cultivated and exported conventional soybean and it is imported thousands tons of genetically modified soybeans yet there are no alimentary products labeled as genetically modified, the obvious question is: what happens with the tons of genetically modified soybean? If the genetically modified soybean isn't used in human food and it's used as animal fodder, shouldn't the consumers be informed so they can choose a product informally? The Romanian legislation is still poor at this chapter and the market and import

surveillance it's very hard, and the consumers are suffering because they don't have access to information.

Consumer protection it's made only by informing them about the ingredients and ensure them that the genetically modified products on the market are safe for consumption because are authorized, although there isn't a conclusive study that can ensure the population that their health won't be harmed. Finally the ones that decide the faith of genetically modified food are the consumer, they are the ones that form the demand on the market and the ones that decide what type of food they want to eat: genetically modified, conventional, biological or ecological food.

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