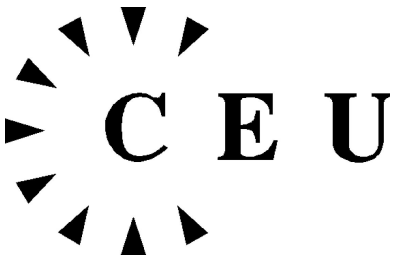

# TRADE AND IMPORT OF GMO PRODUCTS IN EU

By Attila Nagy



LL.M. SHORT THESIS
COURSE: Privacy and Data Protection – Challenges of Biotechnology
PROFESSOR: Judit Sandor
Central European University
1051 Budapest, Nador utca 9.
Hungary

# ABSTRACT

Just as trade and import are crucial elements in the world of every economic transaction, so is the issue of GMO products which plays a very important role in the food industry. EU is considered as a big market and crucial player in the world of science, law, food and health regulation. The nearly total ban of GMO products and the use of the Precautionary principle play a key role in the field of customer distrust to this food. Of course this attitude is covered with scientific uncertainty, consumer disappointment and some food borne health hazards in the past.

Circumstances and unwritten rules under which the food market is running are very relative and trends are changing quickly. The past trend under which GMO products were introduced has now changed. Comparative evidences of distrust are provided from both EU and USA. International agreements, EU regulations and consumer attitudes are the main comparing models and they serve as the factor of determination of the GMO food future. Popularity of it amongst consumers is weak and the trend of naturally sustainable food is playing, and will play, the major role in the food business.

Farmers, producers and sellers will have to follow this trend since their goal is to get a bigger market share, and it is only possible by satisfying customer's needs in the best way.

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# INTRODUCTION

Just as breakfast is the most important meal of the day, food is the most important ingredient of our body. As better we base our physical needs the better they will serve us in the future. Since eating is not just a need of everyday customs, it plays an important role in the development and existence of every human being, and far beyond. Cultural, ethical and legal issues have to be mentioned as a support for the sustainable right of health and living. We are not just consumers, but we are also the product, since it becomes part of us. We are the ones making and using it as our needs make us hungry for it.

Trade and import are two similar words they are both presenting how a product comes to the common EU market. There are many EU regulations, which are being introduced head to head with many different international and local trade rules. This is the main issue with which we will deal in this work. The European Union as a mega state has its own GMO regulations, although they are not in compliance with some international regulations and some other nation's rules. This is the scope of my thesis, and with some other facts it is the key to the pathway of international food and food products trade. Global trade and market is the goal of many multinational companies, and through them also the final destination of the products made by individual producers. This circle, have to be round up by some unique rules, which will guarantee the compliance of certain products to the customer's needs and also state regulations.

There is a need to summarize the possibilities and trends of the global market. The intent of this work is to give an advice to all interested parties in this business. There is a need to predict

the trends of EU and the global market in the future. So this work, research and factual evidences can be used as guidelines and ideas for all interested parties. This is an issue of the global business, which is more an existence issue than a business need.

It is always an important thing to follow money and business streaming. So is the following issue of the trade and import. The route where they circulate in the world, as blood does in our body. Going around, coming in and going out as future income and profit. Not everyone is prepared and able to take part in the future race. Global market has set up its rules and they are getting unified and fixed. Even if we want to speak only about the EU, the rules and in particular the expectations are the same. Standards are being unified and the producers want to respect them. Exceptions will not be allowed, the quality will be standardized in the future. The streams of the raw materials will be directed in advance. Future needs will be regulated and set even before the production of raw materials starts. This is why the final product has to be in such a shape and quality as it is expected. If the producer wants to get a certain final product it will have to respect the procedure, steps, treatments and characteristics of the set rules. In this work we will focus on food products, since the importance of this issue is of the most relevance today. GMO in food is one of the major differences between the two biggest markets on the world, namely the EU and USA.

Key terms in production and trade are quality, quantity and time. Shortening or prolonging them makes an obvious difference in price. Price variations could be achieved through many ways of savings, but none of them could be shortened in such a radical way. On the end we get

some surplus of all resources which can be saved and reused in the following circles of production.

Not to rush forward the whole issue is not that easy, there are some things behind this mathematical scheme. We also have to consider the legal, cultural and ethical issues. Ethical rules are not respected but they have a big influence nowadays on people and legislators. Temporary trends are likely to change in the future, and the fields which are in one moment "poisoned" with GMO will not be able to change without consequences. This two sides in the war will never live side by side, as it is the case now with some concurrent products in supermarkets. The difference is not about the sign, shape or word. They are different in core and soul which can not be changed. As we can not make a plant from a sheep, as the same we can not make a GMO product an Eco or Green product.

Since my ideas are very close to the EU perception of this GMO trade issue I don't want to make any conclusions in advance. But the fact is that governments are respecting people ideas, science evidence and uncertainty of GMO products. Because of their novelty and still practically and scientifically not checked outcomes. The main idea of this work is to prove the factual need of the science in this field which has to develop. And then give support or remove the Precautionary principle. This all is meant to protect the customers and through them the future generations of being served with different unchecked novelties.

# CHAPTER 1 - IMPORTANCE OF GMO PRODUCT REGULATIONS

The human kind is building up a new house where new needs will have to be satisfied. They will have to fit into this house and serve it in the way humans will feel good and can also develop in the future. This new house is planet Earth where human kind will have to spend its life and have to fit on it with all its needs. New technologies will be used to build it, unfortunately these technologies are today much more needed than tested.

This new technology is needed to satisfy one of the basic human needs, and it is of course the technology of making food. Obviously, the demand is very big and it is rising on a day-to-day basis. Agricultural improvements discovered and used in the past century have reached their maximum. Genetically modified organisms (GMO), is the name of this newcomer technology. *"Never before has a new technology in the field of agriculture been so emotionally debated among different stakeholders."* [1] Unfortunately, it is not welcome by all the members of humankind. It is oppressed in many countries and in many ways. "We don't need it", some say. But why they do not need it when it is so good for the Agricultural Business. Why they don't want to buy it and use it when it is so modern? So modern that it is still steaming as cooked vegetable taken out from a boiling pot. *"Since each society ascribes different values to the materials around it based on its needs and wants, each value system differs in judgements of good and bad, acceptable and unacceptable, and normal and abnormal behaviors."*[2] Some people simply do not want to test it and risk their health. The advantages are small in a comparison to the risks that the whole technology is not tested yet in a way such a new thing has to be.



[1] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010), page 103.
[2] James R. Lee, *Exploring the gaps, Vital links between trade, environment and culture*, (Kumarian Press, 2000), page. 193.

But how to develop then, how to do good when someone is oppressing the advance of the whole human society. As is the case with everything, the compromise has to be achieved and it could be achieved only if we respect and understand the other side. Similar to everything today, where ones personal opinion is important and respected, it is not needed to push some ideas to individuals, as every community has its values so every individual has its thoughts too. Democracy is just about freedom, and the respect of every person's opinion. The issue is of what is valued more, ones life for a society or to itself. Who has the right and who owns our lives? This thing is also a topic for debates through over the world, even in USA opinions differ. There is no middle solution, you live or die, you eat GMO or you don't.

Unfortunately the two sides, one opposing it and the other adoring it, are so far from each other as two shores from the same ocean. This is also a fact, on one side is Europe and on the other USA, each separated by the legendary Atlantic Ocean. This is the Ocean which divides continents, people and ideas. *"Endless debate is probably an expected outcome from a conjunction that promises to cause more change faster than any other period in human history."*[3] Since this Ocean will not disappear, so the ideas are not getting closer. Facts are determining the whole issue, where both sides have its own proven facts.

Obviously, this is what is happening right now. The necessity is evident, we need the advance but in some cases not at the cost of taking risks to health. As is the case with new drugs being introduced, they have to be tested. The same is true for GMO food. The problem is that it can be as radiation or as a malicious gene, it can recover itself in the future generations. Of course the GMO supporters will decline that this food can incorporate itself into our bodies, but

[3] *Id.* at page 192.

what then causes cancer, what causes so many food born illnesses. There is still no answer, but what will we do when we find it, how to revert the irreversible?

*"To resolve these dilemmas one may therefore wish to rely on a system of peer judgment of independent and recognized experts to declare a product safe or not."*[4] This GMO food issue is being debated again and again for years, on many national and multinational levels. The decision could not be made that easily, they can not just cut it on the middle. Someone will have to turn the table and take it from the other end. It has to be consumed from one end, no middle solutions are possible.

The unfortunate situation is that until today a lot of money has been invested into this technology. Since time lost means also profit lost scientists can not wait, they want to get paid for their work. But let us try to deal with real facts. Has the time really come for this new technology or we still have to experiment with it, and check the possible future consequences. *"The first generation of GMOs, which focused on herbicide tolerance and pest resistance as the dominant traits, has not provided significant direct benefits for the consumer."* [5] The consequences and welfare of the consumers are not guaranteed. Scientific evidences contradict, they are not proven and time resistant. They are likely to affect the consumers and cause some harm in yet unknown forms.

But the whole issue is so warmed up, and could not be forgotten just like that. "*The second generation of GMOs is expected to provide more direct benefits to consumers, for example through improved nutritional contents of crops."*[6] This second generation GMO food is to come out from the laboratories. Hopefully they will be based on some facts and evidences which have

[4] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010), page 131.
[5] *Id.* at page 103.
[6] *Id. at* page 104.

been achieved in scientific research. They will also have to provide answers to the unanswered questions and failures of the first generation. They could serve them as an example of what no to do, and how not to start a new era of human food culture.

Humans are a kind which is always searching for something evolutionary. The advantages of inventions and new technologies are huge. They gave us many novelties, and they help us keep our society as it is. Many medicines, health and life improving inventions help people today live and enjoy life.

*"It is clear that humans will see a higher rate of technological change in the future, but perhaps there is a "wall" to the extent that people can absorb such changes in lives and lifestyles."*[7] In one moment it is likely that the inventions will hit this wall. As we see today all the technologies have loop holes. Nature changes and it also changes the circumstance we are running our lives today. So as we are not prepared for disasters, so our inventions are making us more lazy and putting us in a situation where from one day there will be no exit and way back. An, example of this is an Atomic Power plant which is made in a way to resist wind, rain and tsunami. But in one moment it cracked under an earthquake and made all the good it produced get lost in the invisible cloud of radiation it spread on the surrounding countryside.



[7] James R. Lee, *Exploring the gaps, Vital links between trade, environment and culture*, (Kumarian Press, 2000), page 200.

## 1.1 GMO FACTS

International business, trade and import are depending on the regulations, both national and international. International trade law is a science which is dealing with these regulations. Law is made according to the needs where they are satisfied in ways of possible solutions. Solutions are sometimes derived from other natural science facts. This is also the case in the issue of GMO foods. GMO food is a product of both Biology and Chemistry, so these sciences are responsible to lead the legal act writers towards a just solution. Of course the right decision is not made in the Parliament or on some kind of International meeting. There is only one acceptable solution, and it is weather a certain GMO product could be used as food or feed or not. *"Given the breadth of opinion on GMOs- ranging from a belief that they are inherently dangerous to a belief that they are the best hope for continued human survival…"*[8] Introduction of this novel food has already left its starting positions. People already eat it and many farmers and producers don't see the way back from it. The fact that GMO food is here, even in Europe, means that we need regulations.

How to regulate something when it is already introduced onto the market? This food was the first one to come to EU and regulations came some time later. Have we eaten poison or harmful food during that time, unfortunately no one gave a positive answer to this question. But the fact is that the regulation which came later are much stricter than the liberal trade approach of today and that time. " . . . *[R]epresent a special threat to biodiversity as they represent an exogenously introduced disturbance of the existing ecosystems and, in some cases at least, can mutate, migrate and procreate. Furthermore GMOs, which are directly used as food or feed, can pose a*

[8] Tomme Young, *Genetically Modified Organisms and Biosafety; A background paper for decision-makers and others to assist in consideration of GMO issues*, (IUCN, Gland, Switzerland and Cambridge, UK. 2004.), page 39.

*potential danger to human or animal health. "*[9] Obviously it is possible that someone uses a new food producing technique without testing it. Inventions are of course expensive but testing them to human health risks could be even more expensive, and of course they are also uncertain.

Now we take a look what the dangers are and what the legislators have to take as scientific facts of enabling the trade and import of GMO food. *" . . . [T]he potential consequence of the transfer of an introduced gene from material derived from a GM food to microorganisms in the gastrointestinal tract or mammalian cells in such a way that the gene can be successfully incorporated and expressed and result in an impact on human or animal health."*[10] The exchange of genes between two species is a fact of evolution. We are what we eat so it is easy to say that genes are being incorporated into the human body of all the food we eat. It is also well known that scientists could reveal what food had ancient animals and humans eaten, they could see it from the cell remains.

Here we have to think of how different circumstances could affect a certain model or a function of a certain food. *"One of the major safety concerns surrounding widespread use of GMMs is their ability to exchange DNA with other organisms in an uncontrolled environment."*[11] Here we see that GMM (Genetically Modified Microorganisms) are able to show this exchange of Genes. Microorganisms are smaller and not so complex organisms as humans, so their life cycle and effects of gene exchange could be followed in a much shorter time than in human generations. This fact makes the procedure even more complex, since how to test something when the results needed could be achieved in many years in future.



[9] Eric Neumayer, *Greening Trade and Investment; Environmental Protection Without Protectionism*, (Earthscan Publications Ltd, London and Sterling, VA. 2001). page 167.
[10] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 310.
[11] *Id.* at page 96.( quoting n. 98)

*"However, they may have effects on other species that are not the intended targets."*[12]

So let see what is happening in humans and what our food is doing to us, is it doing any good. How food affects humans? Gene transfer between species is something normal but it is proven that it could happen in other not so normal ways also. *"Gene transfer between species can take place via a limited number of means, including hybridization or sexual crossing between plants and closely related animals."*[13] Close relation and similarity of cells makes it easy but what in the case of humans. Here is an evidence of a much complex transfer of genes.

*"There is even evidence of horizontal transfer of bacterial genes to eukaryotic organisms."*[14]

Science still owns us some explanations, later I will present some scientific evidences of how GM food treats its consumer, of course the evidence and the experiment is made on animals. But how to make an evidence of some facts when they are not tested, all the drugs are tested either on sick and healthy humans, this is a fact of life as is that some of the healthy volunteers get some not revertible consequences after such testing. GMO food will become obviously part of us, but what, which gene we will take from it. Of course the modified one will be taken too. How will our body act to that unknown visitor. As the electricity runs thru the walls of a building, in seconds it gets to the desired spot, if the wires are broken or the circuit broken the spark sets the system on fire and renders it unusable.

Now we see how this spark works in the human body and what it could be. Of course the whole action in our body will not be so evident from the beginning, as a fire in a house visible from miles away. *"The restriction enzyme system that exists in all cells recognizes and thereby*

[12] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 307.
[13] *Id. at* page 17.
[14] *Id. at* page 96.( quoting n. 188)

*degrades evolutionarily "foreign" DNA."*[15] This fight in a body is the same as the one happening with the Flu virus. Body starts to fight before a person affected notices any changes. The pain and exhaust comes later, when an enemy is almost defeated, and from that time body needs a day or two to recover and get filled with life energy again. But in the case of wrong food or contaminated food, body is not able to take the fight, since there are not so big reserves to keep up such a battle. " . . . *[E]ach gene may control several different traits in a single organism. Insertion of a novel gene can have an unintended auxiliary impact on the rest of the host's genome that results in unforeseen side effects."*[16] The change of the defending mechanism is something very important since all the experience our genes are transferring and all the plagues which human kind have survived, could be changed and that way bring back the old problems which needed centuries of research to invent a cure.

The dangers are of course not debated in such a scientific way, since the possibilities of something going wrong are not respected. Scientists think that the same effects could be achieved and the same safety measures easily invoked in circumstances outside of the laboratories the same as in them. Of course they are wrong, since life and nature always comes out with something unexpected.

*"This is most evident in the nuclear industry, where scientists believed nuclear risks were much lower than did the general public"*[17] Apparently the risks can be controlled inside the laboratory doors, better than in the industry which uses them in the outside world. There are unfortunately many evidences for this. The catastrophe of Chernobyl which takes victims even today many years after it happened, the nature around the reactor can not be cured for many years. The gain

[15] *Id. at* page 19.
[16] Tomme Young, *Genetically Modified Organisms and Biosafety; A background paper for decision-makers and others to assist in consideration of GMO issues*, (IUCN, Gland, Switzerland and Cambridge, UK. 2004), page 18.
[17] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 237.

was of course big, the use of technology maximal but still one mistake made the whole system crush and now the consequences can not be measured in any known numbers. The fail could be made by a human mistake or some natural disaster, what was the case in Japan after a tsunami hit a nuclear plant. The security against all human born factors were useless, the earthquake moved the system out of its stable legs and it crushed, the consequences are now coming and the responsibility is on all of us who enjoyed the good and now have to face the devils face behind it. Technology has its two faces, an example is a car which could kill but also save lives, and on the end we can not imagine our lives without it.

## 1.2. HISTORY OF GMO IN FOOD

When we think about food then we have in our heads something that we have to eat. This thing has to be in the same way healthy and sufficient to cover our daily needs. Humans are the ones who need food, it is not vice versa. The need to get fed is the main aim of buying and consuming it. But how to buy and pay for something what is just a "fake" food. Which is affected with so many things during the production that to cover the basic needs we also need some pills and medicines. This products from which in the making procedure the producers have taken some elements are sold for the same price as the real ones. They name it according to the generic origin but they don't mention that the real nutritional value is much lower. Although the price is real and consumers are getting robbed and cheated this way. Similarly to the GMO foods where some characteristics are changed. Of course the producers make products which make them make more money, and not the ones which are enriching the buyers needs. How could they make such a food in a way to get value of it and not to affect the main features of it. Here is one view of what they forget to mention about GMO food. *"It also recognized the fact that foods have been accepted as safe, although very few have been subjected to toxicological studies."*[18] As the modifiers change certain gene codes they change the functioning system of the organism. They enhance some parts while they don't check for what else that parts are responsible. If it grows bigger it doesn't mean it makes the same value. The size matters and that's why the inside is not respected and left uncertain.

Many people have the ability to change, but changes bring some negative effects among the positive ones. If a student tries to get better grades it has to forget some part of its social life. Social life is responsible for happiness and it removes stress, so the individual could notice that

[18] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 324.

although it improved grades it got more depressive the same time. This is the same way as genes act they take and add to certain values. *"The novel protein could be an allergen, toxin, teragen or carcinogen; it could have an unwanted nutritional effect; it might change flavour, texture or some property affecting food processing or storage; it could affect fertility"*[19]

The incorporation of molecules is a need. But how they will act in the new environment, will they get the second task they have to, will they let us grow and make us strong as food does. The nutritional value differs in the same plant grown in different environment. Some plants know that they will be eaten by different consumers. Some of them want it some don't, they have different defending mechanisms. Some vegetables have to be cooked to be eatable, the natural defending system dies then. How to make eatable a corn which by itself makes a substance which kills butterflies for example? This is probably not the intention but thru GMO food we welcomed some hidden poisons in food.

We have now one other point in this new system. What to do with this unknown new poisons in food. It is helping the GMO food to develop, and get the wanted outcome. But what happens if it is transferred to us when it is known that humans have different needs and life cycles than the food it consumes. *"Some fear that a marker gene for antibiotic resistance present in some GMO foods might survive to reach the large bowel. There, the gene might pass to a pathogen, rendering it resistant to that particular antibiotic."*[20] This is really an unwanted outcome, if the food lowers our defending possibilities. It will have the same effect as AIDS does, make us crack under the first bigger pressure our body falls under. This exceptional case could become a world threat but the looses we will encounter before we find the solution will be of course very huge.



[19] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 204.
[20] *Id. at* page 203.

Now lets turn to see what have we eaten so far, or almost eaten. *" . . . The first genetically altered whole foods (the so-called FLAVRSAVR tomatoes ) appeared on the US markets in 1994. Since then, many other such commodities have been developed."*[21] The GMO vegetables are the first products which have been placed on the market. It is easier to make them and also check the advances they have for the producers. It is also easy to fail since the testing of a vegetable plantation doesn't consume much energy. With a very simple formula a producer can make money, in words as more weight as more money.

But now let us turn to see what happened when scientists tried to make GMO food from animals. *"The 1985 Beltsville pigs were among the first transgenic animals produced by the USDA Agricultural Research Service."*[22] We can see that many years have passed from the introduction of GMO plants. But have the effects and side effects really been measured. Is there any guarantee that this will work in all and every situation. Now this is what happened to this poor animals. *"Nineteen animals made it to maturity, but they experienced painful arthritic conditions and endured physical deformities, ulcers, and decreased immune resistance. These crippled pigs were euthanized."*[23] This is such a sad story for the animals which have even not been able to take care of themselves. They were so harmed that the end result was the only possible solution. Science still have to work on this problem and try as a first step to make healthy animals so they can be tested and placed on the market.

Some other facts and evidences from labs which try to find the solution in a cheaper way by cloning mice. This is also an example of what to expect in the cloning of humans what is also a case biotechnology is dealing today. *"They indicated that knockout and cloned mice showed*

[21] Tomme Young, *Genetically Modified Organisms and Biosafety; A background paper for decision-makers and others to assist in consideration of GMO issues*, (IUCN, Gland, Switzerland and Cambridge, UK. 2004), page 7.
[22] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 191.
[23] *Id. at* page 191.( quoted n. 36)

*increased levels of aggression and suffered impaired learning and motor skills in certain trials."*[24] The successful birth was obviously not a guarantee for a life which could be expected from a normal birth.

But lets leave Biotechnology do its job, and try to see what is happening on the market. Who is buying what and what price can be achieved. What could enhance a certain business and make producers sell well their products. This all is dependant on the consumer attitude and GMO regulations. *"… [It] asks whether the consumer would incur any health risk if it purchases the new product thinking it is the same formulation or contents as the old one."*[25] Obviously the GMO products have some defects, but they are either not discovered or proven, so this products are being discriminated on the market by many consumers and consumer organizations.



[24] *Id. at* page 191.

[25] Tomme Young, *Genetically Modified Organisms and Biosafety; A background paper for decision-makers and others to assist in consideration of GMO issues*, (IUCN, Gland, Switzerland and Cambridge, UK. 2004), page 23.

## 1.3. TRADE AND IMPORT ASPECTS

Food was regulated from the ancient times, the first written sources could be found in the Bible. Romans were the masters of the law so they have had also regulations on health and food.

As many novelties of today GMO foods are also in their teenage ages, where we can not guess and know their future rule in our lives and businesses. The food as it is today is one of the many things we make and use. As for every producer the sale and trade is the most important financial aspect of the business. The market and the price, demand and concurrent products are all an input of the final price. Trade and import have a very similar meaning. They are used to show the path which one product takes in its life. What I want to be noted is that trade in the sense of Europe today is that it is highly regulated and coordinated inside the Union. Every aspect is regulated or under some kind of surveillance. The main goal is sustainability, the whole system works on a basis that it is made in the way it can work, develop and serve all the needs into the far future. Now, since trade and import are similar and today equal categories the issue here is the negative aspect of import. All nations and so is the case with European Union, try to reduce this aspect of trade as it is considered as a factor which negatively influences the wealth of a certain nation. The more a nation is importing the less money stays in between its borders, so the money making subjects, what every individual is, will be able to get less for their work and product. The less I mean because the value will be underestimated, on the ground of low demand or non compliance with customer needs. Customer needs and standards are indexes which will determine the demand for a certain good, and apparently today they are already an important factor.

Here we come again to the issue of compromises. How to peace this two sides when they are both made to serve different goals. How the influence of trade and business persons is being

pressed over all other international policies. *"The trade-environment literature indicates that environmental policy tends to be driven by a trade agenda and not by an environmental agenda*"[26]

This is the case of the dirty technologies, which are exported to poor countries which need investments even if they know that they are dirty and harmful for the environment. But why should EU buy something what is not safe, or not checked and proven to be safe yet. Trade liberalization yes, but food regulations and standards are even more important.

In the EU the trade agenda is of the same importance as the import agenda. Since one day the import countries, from which the most are EU candidates or future candidates will become part of the common market. *"The accession of countries from Central and Eastern Europe to the EU will lead to institutional and economic changes in these countries that may affect their natural environments in various ways."*[27] Here I want to point out that Europe as continent, as a landmass surrounded by the same seas, have to act and respect the neighbors (candidate countries) needs and expectations. Since GMO are same as a radiation, they don't respect borders. The health and body safety have to be guaranteed.

We can find a very good example in the case of the bird flu, where it traveled from the far east to Europe in a couple of months, without having any chance to stop it on the borders of EU or on the entrances of chicken farms. In such situations we have to pay more attention to stop some disaster to occur than to waste a lot of money in curing it while still having some long lasting consequences. *"The environment may be one of the most challenging areas in the new round of enlargement."*[28]



[26] John W. Maxwell and Rafael Reuveny(ed.), *Trade and Environment, Theory and Policy in the context of EU enlargement and economic transition*, (Edward Elgar publishing, 2005), p 76.
[27] *Id*. at page 143.
[28] *Id*. at page 167.

The similarity with GMO products which are sold while in many countries and regions of the world the same tomato, potato and cabbage is thrown away because the price is so low that no producer can cover its costs. There is no balance and the link which is missing between the farmer and the customer is getting more and more complex.

But there are solutions for everything and everyone. *". . . [T]he share of agriculture and industry in GDP is decreasing. Whereas that of services is increasing. "* [29] Here the facts are clear, by just making more the economic advantage will not be bigger, they will for some number be better but the real "business" is to make extra products for an extra price. Making branded traditional products even if they are not branded could earn more, the taste and way of preparing which takes love is appreciated on the end. The traditional farm house tourism which offers real tasty products grown on sun with love are more and more appreciated and have a constantly growing market of loyal customers.

The introduction of new GMO products is becoming more complex because of one other issue which also has an International character. *"Trade may be dependent on ownership of gene sequences or unique genes, and this uniqueness may well be situated in specific environments ( a product) and their use determined by specific cultures (a process)"*[30] Business of modifying and inventing new organisms is a billion dollar business. What is a business about if not about making money, if someone is investing he wants to make sure or get some guarantees that it will be working. As we are reading this literature concerning GMO s we notice that certain products do have their "cover names" they are hybrids or as some say "Frankenstein food". As we won't expect a human to live after death, the same we don't expect an "evergreen" red tomato.



[29] *Id.* at page 161.
[30] James R. Lee, *Exploring the gaps, Vital links between trade, environment and culture*, (Kumarian Press, 2000), page 197.

Since the trade companies are very powerful and have money they will push every border of science more and more to get the results they want. And of course when they smell the victory they will not give up the fight easily. *"Only the most powerful businesses manage to get approval for novel foods, food additives or genetically modified foods."*[31] This makes the race for innovations more clear, and even the producers and consumers will have to start to take this threat more seriously.



[31] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010), page 280.

# CHAPTER 2 - INTERNATIONAL TRADE AND GMO PRODUCTS

It is obvious that the EU depends on the modern global trade trends, as is the fact that the rest of the world wouldn't be so interested in international trade without the European influence on it. The market is one and unique for all the products made today on the Planet. Still, some facts and tastes have differentiated it and made some products more favored than the others. GMO food is also one of the discriminated products and consumers treat it differently in many states of the world. Some trust it and the others don't. *"American consumers, however, have longstanding confidence in the US Food and Drug Authority (FDA). Ironically, Europeans also accept FDA approval of pharmaceuticals, but not apparently food."*[32] As it is known the procedure of approving medicines is under strict rules, it takes several years to get the final conclusion of whether a certain medication can be used and for what purposes. This is very expensive procedure and certainly the companies making GMO can not afford it. It sometimes rise the price of a final product for so much that it will not be economically acceptable to even start developing it. Unfortunately, the route of medication approval techniques and its rules had a long way which had very big costs. No one would like to get involved in one such business, where human destinies are changed and human lives lost. The FDA will probably have to deal with this issue later, but the EU is strict and the science uncertainty is not tolerated.

We have to bear in our minds the fact that some changes in science do influence the global trade trends. Of course some of them in positive and some in negative manner. *"The objectivity of science may also limit globalization"*[33] The issues of biodiversity, domestic sorts, and



[32] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 207.
[33] James R. Lee, *Exploring the gaps, Vital links between trade, environment and culture*, (Kumarian Press, 2000), page. 188.

environmental protection could be and have to be invoked against globalization. Against the Globalization as a positive trend no but against the globalization of the GMO uncertainty.

There are many international organizations which deal with GMO foods. Some of them support the trade and some are more careful of how to deal with unknown scientific facts. *"International agencies, particularly FAO, WHO, and OECD, have been very active in providing an international platform for the establishment of a global consensus on the safe use of biotechnology and regulation of foods derived from modern biotechnology."*[34] The organizations which are meant to protect health are more careful on supporting GMO food, opposing to the ones established to improve trade, and are less critical to the ban of GMO in Europe.

While reading literature concerning globalization one always comes to some critical idea. This idea is usually very radical but in some way it makes sense. One of the critics is that GMO is not really a need, as long as money is behind the idea of global health. When money takes the first place all logics change place and numbers rule the human minds. Now let us see how Amish logic works in this new century and how they still survive without being part of the global market. On the end we will see that European approach is a little bit Amish. *"Amish farmers are still making money in these hard times despite (or rather because of) their supposedly outmoded, horse-farming ways. If they do get into financial jeopardy, it is most often from listening to the promises of modern agribusiness instead of traditional wisdom . . . "*[35] This is something what some people will call "non sense" but the facts show us that some people do survive even thou

[34] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 324.
[35] Christopher Plant and Judith Plant (ed.), *Green business: hope or hoax?* (Green books, 1991), p. 110.

they don't take part in the global market. The technological advances which are introduced into all parts of human economical activities are sometimes so expensive or complicated that the traditional way is the only possibility of making profit. The globalization of agriculture is a fact, but the other question is whether it is really a need of the farmers. Do they really need to make more to earn the same or usually even less amount of money. If we look at it in the way that food has to be supplied to everyone, and that local shortages are covered from global surplus, we are right. But how to end the race how to make the farmers be happy as Amish people. The fact is that people start to favor local and well known traditional products. On the end all favor them in comparison with the ones coming from the global market.

*"But, he said, I'm going back to horses. They're more profitable. "*[36] This sentence of the Amish man speaks by itself, maybe we will not notice why but our kids will probably regret we didn't do so. I want to point out that all the compromises made in the world have to respect the ones not taking part in the discussions even when the economic value of doing so is high, but the need is even higher.



[36] *Id.* at page. 111.

## 2.1 THE CARTAGENA PROTOCOL

In the last twenty years many international conferences have been held for both the issues of trade and environment. Many new organizations have been established and many new acts acknowledged and signed. One of the most important acts concerning the trade of GMO products affecting the World and through it also the EU is the Cartagena Protocol on Biodiversity. Now we will deal with the most important facts and articles:

> *Article 11.*
> *(8). Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of that living modified organism intended for direct use as food or feed, or for processing, in order to avoid or minimize such potential adverse effects.*[37]

Some products could be expelled from the market or marked appropriately so consumers know for some hidden or scientifically not proven facts..

It is recognized by the protocol that some GMO products are simply not safe, or at least don't have a sufficient risk test. Many consequences could occur but this particular regulation pays attention to human health. It allows the party to ask some more information about the product what in the same circumstances don't have to be provided for regular products.

> *Article 15.*
> 1. *Risk assessments undertaken pursuant to this Protocol shall be carried out in a scientifically sound manner, in accordance with Annex III and taking into account recognized risk assessment techniques. Such risk assessments shall be based, at a*

[37] Text of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Article 11.(8) http://bch.cbd.int/protocol/text/article.shtml?a=cpb-11 ( last visited on 25. March 2011)

*minimum, on information provided in accordance with Article 8 and other available scientific evidence in order to identify and evaluate the possible adverse effects of living modified organisms on the conservation and sustainable use of biological diversity, taking also into account risks to human health.*

*2. The Party of import shall ensure that risk assessments are carried out for decisions taken under Article 10. It may require the exporter to carry out the risk assessment.*

*3. The cost of risk assessment shall be borne by the notifier if the Party of import so requires."*[38]

The Protocol recognizes the need of the consumers to be informed. The lack of scientific evidences and the loopholes in information about the GMO food have to be recognized and noted on the product label. States have to work on promoting to the public the awareness of using GMO products.

*"Article 23.*
*1. The Parties shall:*

*(a) Promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of living modified organisms in relation to the conservation and sustainable use of biological diversity, taking also into account risks to human health. In doing so, the Parties shall cooperate, as appropriate, with other States and international bodies;*

*(b) Endeavour to ensure that public awareness and education encompass access to information on living modified organisms identified in accordance with this Protocol that may be imported.*

*2. The Parties shall, in accordance with their respective laws and regulations, consult the public in the decision-making process regarding living modified organisms and shall make the results of such decisions available to the public, while respecting confidential information in accordance with Article 21.*

*3. Each Party shall endeavour to inform its public about the means of public access to the Biosafety Clearing-House."*[39]



[38] Text of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity , Article 15. http://bch.cbd.int/protocol/text/article.shtml?a=cpb-15 ( last visited on 25. March 2011)
[39] Text of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Article 23. http://bch.cbd.int/protocol/text/article.shtml?a=cpb-23 ( last visited on 25. March 2011)

European Union has a similar technique of regulating GMO products. This way of acting is incorporated in the Directives and Regulations of the EU dealing with this issue.

## 2.2 WTO REGULATIONS

The globalization is a fact and it is almost done. Mainly all states on the earth are until now one common market. Borders or distances are not a problem, goods and people could travel to any destination on the planet in days. Therefore the regulation of such a travel also needs to be regulated. Many global issues have been regulated so far. The most important ones for this work are the regulations of The World Trade Organization (WTO).

*"The WTO is the largest and most important set of trade obligations with which the EU must deal; at the same time, the EU is the most important counter-model with which the WTO must deal."*[40]

We can notice that this difference between two organizations is something what have to be avoided, they have to cooperate. But why they differ what makes them to oppose each other so much. The interests are the main things, who is going to get more and how. Like a tow rope, one has to prevail, even when there is enough space for everyone. What is really unfair is that WTO and all other globalization organizations do not want to respect anything what is not global. The local farmers have to serve their needs. Prices are more or less the same in different parts of the world, but still some products could get a higher value. The problem is who is going to have the extra value, of course buying for less and selling for more is an easy thing. The system has to be sustainable and keep running. Globalization depends on transportation, and all the way it is possible to carry some food without harming it, it will work.

In one way internationalization is really a perfect solution, but it is not good if the principles made for trade are translated without discussion or consensus into other fields of trade, which

[40] Sara Dillon, *International Trade and Economic Law and the European Union*, (Hart Publishing, 2002), page 2.

also concern the environment. *"Much depends of course on how tightly Europe's major trading partners (notably the US) decide to embrace WTO law; also on what those partners insist upon in the upcoming round of WTO negotiations."*[41] As in history the protectionist policies served some states and protected their industries, as is the case today with this GMO issues. The pressure is coming from US which have turned together with Argentina its production completely to GMO friendly. The industry of GMO food is the most developed in the USA. As many other new technologies, this one is also made and is spreading from USA. Americans state that this is one more issue where Europe is falling behind and wants to protect its market. EU does not respect the WTO rules and other international trade rules, invoking the precautionary principle.

WTO is a trade organization, and as other International organizations it deals only with one thing, and it is of course trade.

> *"An important fact underlying the ubiquitous trade and the environment debate is that the international trade regime, while capable of threatening domestic environmental laws, itself does not contain or refer to any set of minimal environmental standards. The urgent question is whether or not the WTO will assist in generating such a set of minimum standards, or lose legal credibility."*[42]

All Organizations need compromises and negotiations. Like every UN organization where the representative of big and small, rich or poor, powerful or weak states have to be represented or at least someone have to take care and mention their opinion. Decisions are made with consensus, which in many situations takes a long period of time. To make a sustainable system which will search for compromises between WTO and similar organizations will probably take a long time.



[41] *Id.* at page 5.
[42] *Id.* at page 120.

EU is playing a role of the environmental concerned party. They put environmental issues in front of the trade liberalization.

> "*The question posed is the following: what should be the nature of the linkages between common trade and environment policies, and to what extent should a common environmental policy imply the harmonization of environmental standards? Although the chapter is concerned with the European Union, and with the differences between current and accession states, these turn out to be essentially the same questions being raised at the global level in connection with an environmental analogue to the World Trade Organization (WTO). The institutional implications are somewhat different, but the principles at issue are the same.*"[43]

The differences, but mainly the needs are very different. As a customer EU has enough food, the technology is on a very high level so the grooving needs could be covered with technical improvements. Of course GMO foods are not one of the solutions, they are directly the opposite of what the Europe of today needs. EU needs Eco products, old species of spices and animals which are more durable and need less assistance in growing or breeding. EU needs it and is also ready to pay for it, all this to get sustainability. Evidently EU market is different than some other leading agricultural markets in the world. So are the regulations, and this is why the WTO has to solve this burning legal and life issue.

There are two WTO agreements which are made to deal with food issues, the Phytosanitary policies (SPS) and the agreement on Technical barriers to trade (TBT). They try to unify the standards for food products which are traded on the global market. Probably some similar agreement could be made for GMO food.

The following argument could give answer to many questions. "*. . . [P]ossible risks to monarch butterfly larvae from GM corn, have also featured in international concerns over GM foods, but it is a mark of the extent of globalization that the flapping of the wings of an imperial*

[43] John W. Maxwell and Rafael Reuveny (ed.), *Trade and Environment, Theory and Policy in the context of EU enlargement and economic transition,* (Edward Elgar publishing, 2005), p 59.

*eagle in Portugal can threaten the wine trade between Australia and Britain "*[44] Meaning that the low income of a certain product in one region, could enhance the producers in the other. This is a fact of globalization, the needs are covered in all cases, but the source could be multiple. From ancient times different communities of people have made some stocks of food and things needed for living in harsh times. The value of the product was not high in the moment of the harvest, but later when the need has arisen it was. So the profit went to the person having a surplus in granary and not the producer. If the natural and producing circumstances of growing of a certain plant would be fixed once forever the risk for gaining extra or loosing it would be zero, and this will not be good for business nor food producers, since in the market economy the market is determining the price. This is the most important thing in the market economy and this is why agriculture still attracts investments. So we could conclude that the flapping of the wing of not one but thousands of Monarch butterflies do can threaten the trade between some regions. The effect could be the same as that of one snowflake which could cause an avalanche.

There are also many cases in the past where trade and environmental protection clashed. *"It is little wonder that the US and the EU do not see eye-to-eye on hormone-treated beef and GMOs, and the fact that these differences coincide with European interests under the CAP and US comparative advantage in agricultural production helps sustain them with a "Baptist-and-Bootlogger" coalition."*[45] The need for a certain product does not mean that regulations and human health concerns have to be put aside. If a certain product doesn't comply with regulations it will have to be banned and removed from the market. Unfortunately, such products always find their way to some other customers.



[44] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 119.
[45] *Id.* at page 126.

The cost of not dealing with environmental issues and ignoring them is coming out now. Environment served all the needs of different industries, all technological failures and mistakes were survived. *"Present demands to ban or regulate GM foods contradict WTO rules developed over 50 years."*[46] Now when environment is becoming a burning issue it is hard to solve it in one day and to make as many compromises as they are made in the last fifty years. Organizations on such a high level do not tolerate some other authorities, but the nature is such an authority which is not reading articles, but clear facts which have been proven scientifically. They have to be accepted and respected.



[46] *Id.* at page 212.

## 2.3. GATT RULES AND THE RIO DECLARATION

One of the first and most important agreements on trade is apparently the GATT. Unfortunately some trade barriers are still standing in front of this global agreement. There are some fields which certain countries don't want to globalize. *"The fact that food security, rural life and culture were intimately tied to viable national agricultural structures meant that the key participants in the GATT system were not willing to open up trade in primary products to the same level of competition as other goods."*[47] But who has the right to feed people, who has to give them what they want for their money. The primary production can not be left behind. It is not possible to change in years or even decades some industry fields. American government use to protect the big companies which are on the edge of bankruptcy not to break. They say that they are "too big to fail", meaning that the country can not take the responsibility for the damages it will occur. The social and some similar human rights issues are playing always a role in determining the future of some businesses. The state politics is mainly a social politics, businesses are the ones who are responsible for making money and the state takes it to serve some of its needs.

There are many hardships in respecting GATT as a law. *"It is true that Europe's largest trade rival, the United States, also refuses to give "direct effect" to GATT law provisions."*[48] We could see that everyone takes what is good for it, and the rest is used to make a fake picture of a fair International trade.

But today it is no longer enough to invoke some moral or other similar circumstances. Facts have to be showed and proved. *"When a trade dispute arises over a food standard, GATT now requires the state which set the standard to give reasons to the international community, which*

[47] Sara Dillon, *International Trade and Economic Law and the European Union*, (Hart Publishing, 2002), page 175.
[48] *Id.* at page 356.

*also increases transparency intra-nationally."*[49] The evidences for GMO foods still have to be acquired, and it will take still some time to be fully scientifically proven.

One of the main GATT Articles EU favors is Article XX. "*The EU Commission favors global environmental agreements having priority over WTO rules, including article XX. This is another attempt to bypass non-discrimination, because article XX allows trade measures on environmental grounds, as long as they are non-discriminatory."*[50] Measures on environmental grounds are usually discriminative towards import. The fact that health damages to human bodies can not be accepted without some factual evidences. Such evidences could be achieved only by doing big harm to some individuals, what is usually an unlikely method. As GATT rule says "… *(b) necessary to protect human, animal or plant life or health;…"*[51] So how to prove that a certain method of protectionism has a scientific background. It is impossible without damaging the environment.

The precautionary principle is recognized from the beginning since the facts showed that international trade do needs some protectionism.

> *Principle 15. In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*[52]



[49] John Braithwaite & Peter Drahos, *Global business regulation*, (Cambridge university press, 2000), p. 413.
[50] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 218.
[51] The General Agreement on Tariffs and Trade 1994 (GATT 1947), 1947, art XX (b) http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm (last visited March 25.2011)
[52] Rio Declaration on Environment and Development, The United Nations Conference on Environment and Development, Having met at Rio de Janeiro from 3 to 14 June 1992. Principle 15, http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163&l=en (last visited March 25.2011)

This measure should not be used to prolong the acceptance of certain products. It is suppose to fill the loopholes until some scientific facts are not achieved. But there is neither an authority to provide facts, nor punish for the wrong use of this principle.

# CHAPTER 3 - GMO PRODUCTS IN THE EUROPEAN UNION

EU is a market which traditionally opposes GMO products. Behind this fact we could see that there is a big number of regulations concerning GMO food. There are more regulations than products on the maekrt in this moment. Why is this needed? The answer is that the trends in the world push the EU to act. It has to regulate in the case of both allowance of GMO and forbiddance. *"In the European Union, environmental release of GMOs has been regulated since the early 1990s."*[53] This period was considered as the beginning of the introduction of GMO food to the EU consumers. In the beginning liberal approach was regulating this issue as many others. But soon EU became very strict about GMO food.

The following procedure applies to the acceptance of GMO food on the EU market. This work is not to deal with the procedure of accepting GMO food, this short chart is here just to show how GMO products could reach the market.

> *GMOs can be approved at three different levels: as food or feed, for import and processing, and for cultivation. In the EU, approval for import and processing and as food or feed is mainly managed by the Directorate General for Health and Consumer Affairs, while approval for cultivation is managed by the Directorate General Environment. In order to provide EU consumers with a choice, food products derived from or containing GMOs need to be labeled (with a threshold of 0.9%) and traceable, but products derived from animals fed with GMOs need not be labelled.*[54]

This procedure is the only way to reach the market, although there are some other regulations which have to proof check it from time to time.



[53] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 332.
[54] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 105.

*"Until now, a number of transgenic events of cotton, maize, oilseed rape and soybeans are allowed for EU import, while only one crop, Bt maize MON 810, has approval for planting."*[55] This exception makes a clear picture that EU is not against GMO, but it wants to see the scientific side before it approves. The difference on planting approval or trade allowance is that not all the GMO products are made for being made in EU. There are such products which are intended to be made for export. EU as an import country of such products allows them. Of course the approval lies on the fact of the safety of such products.

The regulation works in this way. When we are buying certain product, besides the content, origin and qualities, some products should state the following.

*"In order to ensure that the presence of GMOs in products containing, or consisting of, genetically modified organisms is appropriately identified, the words "This product contains genetically modified organisms" should appear clearly either on a label or in an accompanying document."*[56] Consumers are informed and have the right of choice. They are provided with the information and this is what makes them feel on the safe side.

But the fight is still going on. There are states which simply don't want to get involved in this business. *"Still, some EU member states have banned the cultivation of the only currently GMO approved for planting."*[57] This plant is the GMO corn or maize. Using the common sense they can explain their decision easily. Why to allow this sole plant to be grown and that way affect the

[55] *Id.* at page 105.

[56] Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC - Commission Declaration, of 12 March 2001, page 3, note nr (40) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:106:0001:0038:EN:PDF (visited at March 21.2011)

[57] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010), page 106.

whole system. They can invoke the precautionary principle which will be later explained in this work.

The Union already made an exemption and introduced some products for which approval is not needed. *"… Thus, products obtained from animals fed with genetically modified feed or treated with genetically modified medicinal products will be subject neither to the authorization requirements nor to the labeling requirements referred to in this Regulation."*[58] This contradicts the Traceability principle which says that all GMO products have to be traced. They can use this loophole and it affects the freedom of information mentioned above.

*In addition, the labeling should give information about any characteristic or property which renders a food or feed different from its conventional counterpart with respect to composition, nutritional value or nutritional effects, intended use of the food or feed and health implications for certain sections of the population, as well as any characteristic or property which gives rise to ethical or religious concerns.*[59]

Clearly this exception allows the system get "dirty" the same is said for the food when it does not apply to certain standards. The standards could be made today or even in the ancient times, when some religions are concerned.

In the world of business no one is excluded from the critics and sometimes boycott. There have been many companies and products boycotted from different person and organizations and

[58] Regulation (EC) no 1829/2003 of The European Parliament and of the council of 22. Sept. 2003, on genetically modified food and feed page 3, note (16). http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0001:0023:EN:PDF ( last visited on March 21. 2011)

[59] Regulation (EC) no 1829/2003 of The European Parliament and of the council of 22. Sept. 2003, on genetically modified food and feed page 3, note (22). http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0001:0023:EN:PDF ( last visited on March 21. 2011)

for many reasons. "*The outcry by non-government organizations (NGOs) against GM foods has caused food retail chains in many European countries to remove popular brands of widely used processed foods from their shelves (for example, tomato paste, soya breads and so on). These decisions will affect trade in due course."*[60] Food chains are usually big markets which depend on their name and guaranteed standards. While they try hard to build up a good image by making advertisements and good sale offers, one small mistake could cost them a lot. Even if they would be selling one GMO product people would call them a GMO shop and they will certainly be victims of this negative image. Of course newspapers and magazines are playing the key role in this negative advertisement. They eagerly wait all the mistakes and usually decorate them with some extra conclusions. No Supermarket or a serious producer wants to risk. The so called advantages of GMO food are not that known as customers bad attitudes towards them. No one really needs a tomato grown in some extreme conditions when next to them there are fresh home grown ones which are well known to customers and have been used for years with no negative consequences. The conclusion is the following. If one can not sell something there is no need to make it.

But the story of GMO products does not end here. There will be new tries to use this technology to improve products and that way conquer the market.

> *This may be particularly true now that new types of products are appearing on the market with modified nutritional value, which can influence the behavior and well being of consumers either favourably or unfavourably. In addition, the information which*



[60] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO,* (Edward Elgar publishing Limited, 2000), page 206.

*would allow the consumer to make the correct choices is not systematically available in a clear and accessible way.*[61]

Consumers will have to face with new products coming from different sources. Sometimes they will be modified in some way, but the legislators would not act always on time and no authority would guarantee the safety until we all serve as a testing ground for novel foods.

The main goals of regulations are satisfied for now. Consumers are also fine with the protection they are getting. *"It is necessary to ensure that consumers are fully and reliably informed about GMOs and the products, foods and feed produced therefrom, so as to allow them to make an informed choice of product."*[62] The main rule of trade is to guarantee that a buyer is getting what is offered. The qualities of products are known, and if we will have to rethink the circumstance lying behind, it will cost much more for the trade. The trade in a sense as it is today will cost more and be less functional. Europe is for now not a GMO consumer but if it becomes one day, it will make GMO regulations more active.



[61] Commission adopts White Paper on Food Safety and sets out a "Farm to Table" legislative action programme, Brussels 12 January 2000. page 33. Art. 104.) http://ec.europa.eu/dgs/health_consumer/library/pub/pub06_en.pdf (accessed on 21. March 2011

[62] Regulation (EC) No 1830/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC, 22. September 2003. page 25. note (11). http://eur-lex.europa.eu/LexUriServ/site/en/oj/2003/l_268/l_26820031018en00240028.pdf (accessed on 21.March 2011)

## 3.1. EU LAW MADE FOR THE REGULATION OF GMO PRODUCTS

Since the first agreement was signed before fifty years many things have been regulated in the EU. And what the most important is, many food regulations have been introduced. *"EU food legislation is well structured and effective in achieving its objective to ensure food safety to consumers."*[63] It is widely accepted that EU regulations do protect consumers. But let us see how it works and how this protection developed.

Here we will see what is possible, and what could be placed on the market and under what circumstances.

> *Art. 4 Requirements*
> *1. Food referred to in Article 3(1)must not: (a) have adverse effects on human health, animal health or the environment; (b) mislead the consumer; (c) differ from the food which it is intended to replace to such an extent that its normal consumption would be nutritionally disadvantageous for the consumer.*[64]

Here the authorities have to rely on scientific evidences. Of course it takes time but once a product is allowed it can be marketed.

Once a product is on the market it can not be discriminated and its approval is valid for ten years.

> *Art.22 Free Circulation*
> *Without prejudice to Article 23, member States may not prohibit, restrict or impede the placing on the market of GMOs, as or in products, which comply with the requirements of this Directive.*[65]

[63] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 281.
[64] Regulation (EC) no 1829/2003 of The European Parliament and of the council of 22. Sept. 2003, on genetically modified food and feed. page 7, Article 4 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0001:0023:EN:PDF ( last visited on March 21. 2011)

[65] Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC - Commission

Safeguards are provided and they allow the market to withdraw some suspicious products. Some new facts could appear and this is what could be invoked then to revise the approval.

> *Article1. Objectives. This Regulation provides a framework for the traceability of products consisting of or containing genetically modified organisms (GMOs), and food and feed produced from GMOs, with the objectives of facilitating accurate labelling, monitoring the effects on the environment and, where appropriate, on health, and the implementation of the appropriate risk management measures including, if necessary, withdrawal of products.*[66]

Technical and global effects don't let the products be absolutely unaffected by GMO, some natural modifications could also occur. On the technical side it is possible to mix some amount of GMO with genuine products and they could get affected in some way.

> *Article 47*
> *Transitional measures for adventitious or technically unavoidable presence of genetically modified material which has benefited from a favourable risk evaluation 1. The presence in food or feed of material which contains, consists of or is produced from GMOs in a proportion no higher than 0,5% shall not be considered to be in breach of Article 4(2) or Article 16(2), provided that: (a) this presence is adventitious or technically unavoidable;…*[67]

Tolerance on the level of 0.5 is necessary, since the changes are avoidable in the natural environment.



Declaration, of 12 March 2001, page 13, Art. 22 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:106:0001:0038:EN:PDF (visited at March 21.2011)

[66] Regulation (EC) No 1830/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC, 22. September 2003. page 25. Article 1. http://eur-lex.europa.eu/LexUriServ/site/en/oj/2003/l_268/l_26820031018en00240028.pdf (accessed on March 21. 2011)

[67] Regulation (EC) no 1829/2003 of The European Parliament and of the council of 22. Sept. 2003, on genetically modified food and feed page 22, Article 47 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0001:0023:EN:PDF ( last visited on March 21. 2011)

There is a clear procedure and everything is set up for future acceptances of GMO products. The system works and there are many products in the procedure. For the convenience of the customers and to have them informed there is a Register.

> *Article 28*
> *Community register 1. The Commission shall establish and maintain a Community register of genetically modified food and feed, hereinafter referred to as "the Register". 2. The Register shall be made available to the public.*[68]

Register makes customers have the choice. They can see what is approved, and when they go shopping they know on what to pay attention.

Information is the most important fact that is connected to GMO food. EU is very liberal and feels a duty to inform both the customer and the authorities of member states. *"The Commission forwards to the member states a copy of the notification. The product can then be marketed in the entire European Union."*[69]

This is why Common Agricultural Policy is under strict surveillance. The EU is always trying to make its best, but since the administrative procedures are slow, there is always a chance for eating something we didn't meant to. *"But also, the CAP has been through a "Health Check" that is leading to some concrete policy modifications, and the European ministers of agriculture have started preliminary discussions about the future of the CAP after 2013."*[70] In the last chapter of this work much attention is paid to the consumers attitudes. Their decision not to buy

[68] Regulation (EC) no 1829/2003 of The European Parliament and of the council of 22. Sept. 2003, on genetically modified food and feed page 17, Article 28 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0001:0023:EN:PDF ( last visited on March 21. 2011)
[69] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 334.
[70] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 395.

GMO food is very strong in the EU right now. It is not likely to change in the near future. From that we could conclude that the new CAP will have only one solution to adopt. Of course it will be the continuance of the GMO products ban. The market is itself turning towards some forgotten traditional products and ways of production. They have been successfully used in the past, and unjustly pushed out. Since the technologies which have pushed them out have failed until now. And the Agricultural class lives mainly on subsidies now. The leaders of this market, pressed by strong consumer attitudes, are introducing the forgotten products of our near past. It is advisable to turn to this trend since its advantages are tremendous.

## 3.2. THE PRECAUTIONARY PRINCIPLE IN EU

Law as a science has many regulations. The main rules on which law regulations depend are called principles. Such principles are created in a way to make the users understand better the conclusion. They can predict the outcome of a certain case, when they see what principle is leading it. *"The raison **d'etre** of the precautionary principle is its status as a principle which permits (or, in stronger versions, mandates) protective action in circumstances of uncertainty."*[71] In cases of uncertainty, law will apply the precautionary principle. This will mean that in cases where there is not enough evidence, the prohibition will be the invoked measure. Since the uncertainty invoked the precautionary principle.

Let us look to the historical evidences. Here are some facts which make this principle get its reason. *" . . . "mad cow disease" (BSE) can be infectious for human beings as well, or the potential health dangers from beef stemming from hormone-treated cattle, or the dangers from genetically modified organisms – the central characteristic of these and other cases is the uncertainty of the danger posed."*[72] Since the outcome of using these products is uncertain, law can not guarantee it. And this is the case when it invokes the Precautionary Principle. *"Under the precautionary principle, even if not proved, a suspected cause-effect relationship can form the basis of regulatory action"*[73]

This principle was also introduced as a main policy of EU towards the import of GMO products. The EU has sent a Communication to the WTO stating that it has banned the import on



[71] Catherine Button, *The Power to Protect; Trade, Health and uncertainty in the WTO*, (Hart publishing, 2004), at page 131.
[72] Eric Neumayer, *Greening Trade and Investment; Environmental Protection Without Protectionism*, (Earthscan Publications Ltd, London and Sterling, VA. 2001). page 154.
[73] Catherine Button, *The Power to Protect; Trade, Health and uncertainty in the WTO*, (Hart publishing, 2004), at page 126.

the ground of this Principle. *"In its Communication, the EC attempts to establish the status of the precautionary principle outside the narrow confines of international environmental law."*[74] It was stated that it concerns human health, and this is what is supposed to be the most protected fact of the human body integrity.

The importance of the Principle has been significant since many years. From its beginning in the Rio Declaration through the EU Regulations now it became a very important trade Principle. The importance of some principles is rising or declining during the time. This fact makes also the regulation change. *"Having recounted the international environmental agreements in which the precautionary principle occurs, the Commission then finds that the precautionary principle has been consolidated in international environmental law and has now become a general principle of international law"*[75] Now we could see that using this principle made the mainstream of EU regulations. So it is more likely to expect that it will also influence international trade law in due time.

Here is the text of the precautionary principle as it is used in EU:

> *Article 7*
> *Precautionary principle*
> *1. In specific circumstances where, following an assessment of available information, the possibility of harmful effects on health is identified but scientific uncertainty persists, provisional risk management measures necessary to ensure the high level of health protection chosen in the Community may be adopted, pending further scientific information for a more comprehensive risk assessment.*
> *2. Measures adopted on the basis of paragraph 1 shall be proportionate and no more restrictive of trade than is required to achieve the high level of health protection chosen in the Community, regard being had to technical and economic feasibility and other factors regarded as legitimate in the matter under consideration. The measures shall be*

[74] *Id.* at page 122.
[75] *Id.* at page 127.

*reviewed within a reasonable period of time, depending on the nature of the risk to life or health identified and the type of scientific information needed to clarify the scientific uncertainty and to conduct a more comprehensive risk assessment.*[76]

It is easier to prevent the harm to happen then to cure it later when it occurred. This principle helps besides the consumers also to the producers of reducing their responsibility if it arises. Such principles in trade are important to provide protection to the harmful categories such as environment and consumers. In due time, as scientific arguments develop, trade will get its freedom back, and also widen its borders.



[76] Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety, page 9. Article 7
http://eur-lex.europa.eu/pri/en/oj/dat/2002/l_031/l_03120020201en00010024.pdf (accessed on 21.March 2011)

# CHAPTER 4 - LABELLING AND CONSUMERS ATTITUDES TO GMO PRODUCTS

In this chapter we have to deal with the fact and the importance of giving the right information to the consumers. Importance of labeling is recognized in the EU, but besides it many other states and companies use it. Positive labeling is of a big importance from the economic view also. Consumer attitudes are directly influenced by labeling. So on the end we will see how labeling influences consumers. The fluctuations on the market of a certain product directly influence the producing companies, and profit streaming on the market.

A mysterious power is hiding behind the economic rules and counting. Here some minor changes could make the earth shake. *"Markets are becoming increasingly globalised, and competitive conditions often change quickly."*[77] As any minor mistake in production could make a company loose market and quickly get out of the business. So is the case with that innocent sentence of warning for GMO content, it could make market conditions change.



[77] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 304.

## 4.1. PRODUCTS LABELLING

Importance of labeling is not lying in the sole fact that consumers want to know what product they are buying. It shows the main content of the product and also shows the extras it contains. Of course the labeling style used in the history was positive labeling. It means the positive effects of the products were written on the label. Today producers are facing labeling of GMO products. This labeling is believed as something negative. So many states don't make it necessary.

The following example shows how non-mandatory positive eco-labeling can be used. It concerns a trade dispute where environmental damages were certain.

> *A voluntary eco-labelling scheme, on the other hand, could be deemed GATT-consistent. In the famous first GATT dispute settlement on US import restrictions of tuna, the panel upheld the Dolphin Protection Consumer Information Act which gave tuna processors access to a voluntary "dolphin safe" label, if they could demonstrate that the tuna was actually caught without harm to dolphins.* [78]

It shows how producers could take the responsibility over labeling and get the advantage over others. Positive labeling is a very good marketing move also.

In WTO rules labeling is not a mandatory for GMO food. We can see that WTO supports the American trend of GMO free trade and no labeling. *"WTO rules with respect to eco-labelling schemes are not particularly straightforward."*[79] According to it labeling is possible. But the negative concerns of customers towards GMO food, is not respected.

This makes the way towards the solution to the destiny of GMO products even more complicated. Consumers are today very concerned about what they buy. They have experienced,

[78] Eric Neumayer, *Greening Trade and Investment, Environmental Protection Without Protectionism*, (Earthscan Publications Ltd, London and Sterling, VA). 2001. page 27.
[79] *Id.* at page 27.

and still experience dishonesty from manufacturers which is formed in the way of paying more for less value. *"Increasing effort is being directed to harmonizing labeling requirements so that consumers everywhere can understand the composition of what they are buying."*[80] As positive labeling gives extra value to the products of the same generic origin, the information of the product being GMO also need to be mentioned. Both cases are invoking positive or negative concern towards it. *"In the United States, labeling is not required for any GM foods or GM food products."*[81] This fact shows that GMO products are not welcome, since even the marketing oriented American businesses are not using the advantage of it. Or better say disadvantage since the labeling would serve as a warning.

The solution has to be found through a standardization procedure. *"For example, standards defining what ingredients are needed for a beverage to be described as beer are subject to global mutual recognition, allowing global brewers to trade their products freely."*[82] Beer is a well known generic product where positive labeling of origin and content is highly valued by customers. Similar labeling standard of content has to be provided for GMO products also.

The best place where such a regulation could be incorporated is the Codex Alimentarius.

*[T]he FAO/WTO Codex Alimentarius Commission deals with such issues on a global level, and serves as the global reference for food standards, guidelines and codes of practice."*[83] *"The Codex Alimentarius system presents a unique opportunity for all countries to join the*



[80] John Braithwaite & Peter Drahos, *Global business regulation*, (Cambridge university press, 2000), p. 411.
[81] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 111.
[82] John Braithwaite & Peter Drahos, *Global business regulation*, (Cambridge university press, 2000), p. 411.
[83] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 291.

*international community in formulating and harmonizing food standards and ensuring their global implementation.*[84]

Mandatory labeling is one of the most important parts of the GMO regulations in EU. *"Labelling and branding are increasingly important and successful routes for delivering messages about food quality to consumers."*[85] Delivering the proper information is the both moral and legal duty of every producer. Consumer protection acts deal with this issue and have regulations of punishing the wrongdoing. This is also a safeguard measure. *"This requirement is related to the fact that certification reduces the risk of liability claims in case something goes wrong."*[86]

The importance of positive and negative labeling is tremendous. Positive labeling is widely used as a non mandatory labeling in many business advertisements.

> *In addition to international and EU public regulations, many large food companies have engaged in establishing private food standards – often stricter than public requirements – and have adapted food quality and safety standards in certification protocols. Examples include Global GAP (formerly EurepGAP), the British Retail Consortium Global Standards, the Ethical Trading Initiative, Tesco Nature's Choice, etc.*[87]

Labeling of this kind sends a clear message to the consumer what are they purchasing. The extra price could be also achieved by positive labeling of products. Some advantages, in comparison to the similar products of a certain kind, could be achieved.



[84] *Id.* atpage 291.
[85] *Id.* at page 286.
[86] *Id.* at page 288.
[87] *Id.* at page 110.

Green or eco rating would guarantee to companies that every single customer wishing to buy some eco products has the possibility to do so. Small Eco Shops are very successful these days, they even survive inside some big shopping malls just next door to supermarkets. *"A "Green rating" would enable companies to establish an outline agenda for action, while simultaneously allowing the public to reward good conduct"*[88] The quality products they are selling is a guarantee that for the extra price that a customer pays it doesn't have to check the products origin. Everything is green and that what makes customers come back. The difference in the price between the eco and the low cost modified or any other product is usually miserable. The price of two similar products could never be that big that it makes them radically different. The business sense of market managers is very good and they are counting on customers saving habits so they form the price the way that the difference is only in cents. As we go to shop we notice that buying more and saving a little bit on everything, make us save some amount of money. Although if we wouldn't save, and instead of buying the low cost "budget friendly" products, buy the regular ones the positive effect would be much bigger and the quality would be much more satisfactory. The difference in price is lower than the gain in quality of buying the normal products. GMO offer that it could reduce the price is not that interesting any longer. Since many green producers are making good and sustainable products without using chemicals, what is the main saving advantage of GMO products. The average quantity is not the biggest but the quality is much better than the regular supermarket food. Different diets and many different health problems which people have are pushing the eco products in the first line. The business possibility in this field is growing and the only wall standing in front of it is the farmer's decision to join the "club". Recently no one have wasted money or made a bad investment investing in

[88] Christopher Plant and Judith Plant (ed.), *Green business: hope or hoax?* , (Green books, 1991), p. 67.

this field. The need is growing and developing, also getting into different food standards, brand names and service industries.

*"Claims made that foods are "organic" or "GM-free" for example, appeal to those consumers with a culturally-amplified perception of the risks of pesticides residues or GM foods, without being different to labeling those made for eggs as "free range" or other foods as "halal" or "kosher"."*[89] Why should we eat everything what is served, there is a right of choice. As vegetarians don't eat meat, as Muslims don't eat pork or as Europeans eat everything except GMO food. Even if they want to eat it they could import it, label it accordingly, and enjoy the freedom of eating. The issue is a big fact that if we serve meat to a vegetarian or pork to a Muslim that person will take it as a serious offence and we will find ourselves in a situation committing a big disrespect to that person. So is the case with EU, if it chooses its own meal and is ready to pay for it let it have it.

The positive labeling is of course more popular than negative. *"Positive labeling indicating that a product has characteristics which might command a price premium or offer a lower level of perceived risk is likely to involve lower social costs than requiring general labeling."*[90] The cost of labeling is on customer who is ready to pay for it, and the producer finds a stable market for its product. As we all have experienced and know how it is to be a customer, we notice that all the shining and big letter labels advertise the "super powers" of a certain product. If it is true probably the labeling of food as GMO would also be an advantage and not a disadvantage as it is today. The positive eco-labeling which is made under certain standards guarantees an extra price

[89] David Robertson and Aynsley Kellow (ed.), *Globalization and the environment, Risk Assessment and the WTO*, (Edward Elgar publishing Limited, 2000), page 243.
[90] *Id.* at page 244.

for a product, while GMO food is still struggling to get on to the market even while having lower price of its cousin the "normal" food.

Advantages of marketing are used very successfully in the past century. Everyone wanted to get an advantage in the race against the concurrent businesses. Some companies have build up a kingdom on only using sweet words, where the products were of an average quality. Marketing is a part of every business which wants to take part in the race in this century too. Here we come to the issue of false labeling. "*The biodegradable plastic bags are not biodegradable. The recycled paper is likely only marginally recycled."*[91] The products advertised are usually of the average quality, the really good ones which are appreciated by customers already have their way. The marketing will not change their position, since some people will anyway buy them, and the ones which can not afford them will not be influenced anyway. Definitely many things influence the customers, from price and manufacturer name to the seller and the origin of the product. Plastic bag and paper are so generic products that it is very hard to differentiate them from some other producers. They are a need on certain places and people use them without paying much attention on them. They are a tool which is needed in a certain moment.

Shopping in the supermarket which advertises itself as using biodegradable plastic bags, or buying a book or notebook which is printed on recycled paper makes a customer feel good. But where is the truth, do we or they the producers really care that much. The advertisings are sometimes fake or just half of the truth. Tendering the customers and making them feel good is always good from the side of the profit. Customer is paying for something what is just partly recycled or just made in the company which makes recycled things, has a license but do not make all the products in such a way. Similar things are happening with GMO products, they are

[91] Christopher Plant and Judith Plant (ed.), *Green business: hope or hoax*? , (Green books, 1991), p. 3.

tolerated to different percentages. Some of them may contain GMO in bigger or lower percentage. But the fact is one, they are modified.

The customer society would really appreciate if the producers and advertisers could be honest and say the truth. The problem is also with the legislation where they make compromises with different influence groups while they make the law. As a famous sentence says" There are two things people don't want to know how they are made, sausages and law". Since if they would know they would probably be discussed by them and won't consume them as they do today." The misrepresentation is a fact of today's society and many companies do cheat their customers. They threat them with sweet words telling them what they actually want to hear.

## 4.2. CONSUMERS ATTITUDE TO GMO PRODUCTS

Consumer habits are a well known economical factor in every business. The strength of some products is guaranteed by the huge demand towards them. People buy well known brands even if they cost more. But how the market acts to some new products, is there any fear towards them. It is hard to introduce new products especially when consumers are not sure about its characteristics. *"This "fear of the unknown" is a quite common phenomenon with humans, and clearly also valid in the context of GM foods."*[92] The public opinion shows a big disfavor towards GMO products. It has a multiple background, with many proven and unproven facts.

In EU shops are not selling GMO food. But even if they would the sales would be very poor. *"A later survey, the 2001 Eurobarometer survey, showed that 70.9% of Europeans simply do not want genetically modified organisms (GMOs)."*[93] This attitude against GMO food is the most relevant factor why shops are against introducing the allowed GMO products. The GMO free guarantee is a brand like category, which is offered by default. So no company wants to take a risk.

The global EU tendency has been also checked in smaller state markets. The results are also clear. *"More than half of Italians would not purchase GM foods."*[94]

For a food chain market a lost of half of its customers would be a significant disadvantage. *"Further, the Irish consumers were more likely to indicate that mandatory labeling is important*



[92] Robert E. Evenson and Vittorio Santaniello (ed.), *Consumer Acceptance of Genetically Modified Foods*,( CABI Publishing, 2004), page 102.
[93] *Id.* at page 111.
[94] *Id.* at page 137.

*and less likely to purchase a GM food product."*[95] The danger of a mandatory labeling imposed by the law makes producers stay away as far as possible from producing GMO.

Here is the right place to mention some investigations and it's outcomes from the consumer GMO purchasing habits. *"Average expenditure shares for GM-labelled and unlabelled frozen pizza was 6.05% and 93.95%, respectively. Average expenditure shares for GM-labelled and unlabelled frozen processed fish was 2.68% and 97.32%, respectively."*[96] This difference shows that for consumers the label plays a major role in the decision of purchasing. The tests would be similar for any other product since the label is what made the final decision. *"Specifically, the survey indicates that only 22% of the European respondents are supporters of GM foods, 25% are risk-tolerant supporters and up to 53% are opponents."*[97] Once again the anti GMO front won a battle. The message is very obvious. No one will buy GMO in such a number to keep a certain business running.

The majority of European consumers refuse to buy GMO at all. We have to decode this mystery to see how to turn them get back their faith. *"A majority of European consumers believe that GM food is "dangerous" with highest levels of concern in France and Greece and lowest levels in The Netherlands, Finland and the UK."*[98] There is a possibility of marketing some products, but still the value and the cost of being a GMO company is too big to risk the whole company name.



[95] *Id.* at page 153.
[96] *Id.* at page 30.
[97]. *Id.* at page 118.
[98] *Id.* at page xiv.

Not surprisingly the Americans have solved the GMO branding issue in a very interesting way. *"In Response to the consumers' desire to avoid genetically modified ingredients in food products, numerous products have appeared on the grocery shelves in the USA that bear the label "non-GMO". "*[99] Again we have the so called positive labeling. It recognizes the need of the consumers to buy GMO free, and takes the advantage of it by guaranteeing that products are GMO free.

*"This implies that producers of non-GM foods might benefit from the labeling policy."*[100] This conclusion is a big factor of encouraging the non GMO producers of their fight and attitude to make quality products. *"Consumer acceptance of GMO products, therefore, has become a vital factor on how prosperous the market for GM foods will be in the future. It will affect the future course of private and public investment in the development and use of GM technology."*[101] Planning the future is a very important issue for banks, companies and producers. Guessing what the needs will be could help cover them in the future. In the same way covering them in due time could guarantee a proper share in the market.

One of the many aspects which we have to be taken to see the outcome is also the profiling of the purchasers. How and what makes them decide for or against GMO food. *"Their study also finds that gender is a significant determinant of attitudes towards GM technology and female respondents are willing to pay more to reduce risk."*[102] This attitude is not just a fact of shopping habits it shows how female customers are more concerned about the unknown. They are willing to pay extra. It shows that even the price discount will not be enough to convince them. *"Note*

[99] *Id.* at page 53.
[100] *Id.* at page 128.
[101] *Id.* at page 117.
[102] *Id.* at page 118.

*that the number of children within the household has a significant negative effect on respondents' willingness to consume GM foods, as the concern for younger children in the household would certainly decrease the consumption of GM foods."*[103] This is another determining factor which makes the anti prospective even stronger. The fluctuations on the market and the price will probably not change such standpoints. "*Finally, some non-GM products sell at a premium to the corresponding GM products."*[104]

Now it is the right time to see why consumers have this mistrust. Of course it is easy to give a cheaper offer while trying to convince a buyer, but in this case the sole economic view is not enough.

> *In the case of "mad cow disease", despite presumptions of risks, stringent measures on cattle feed and meat imports were sometimes taken with much delay-or were not complied with – primarily to protect economic interests in the sector. About asbestos, although its risks had been known for a long time, it continued to be used, especially to protect the interests of this industry which was an influential player in the official body responsible for evaluating and managing risks.*[105]

Distrust to authorities and especially to not proven novelties has a long history in Europe. This makes very hard to introduce any kind of new, advanced way of producing. It also makes the EU fall behind USA in developing new technologies, since all the novelties in the last centuries were coming from USA.

One of the freshest inventions is a Protein food. "*Novel protein foods are plant protein-based food products, which are developed by modern technology (including biotechnology) and*



[103] *Id.* at page 124.
[104] Sarad R. Parekh (ed.), *The GMO Handbook, Genetically Modified Animals, Microbes, and Plants in Biotechnology*, (Humana Press, Totowa, New Jersey, 2004), page 291.
[105] Robert E. Evenson and Vittorio Santaniello (ed.), *Consumer Acceptance of Genetically Modified Foods*, (CABI Publishing, 2004). page 174.

*designed on the basis of consumers' preferences for flavour and texture."*[106] This new generation food is consumer friendly since the main goal is to make consumers satisfied. Of course the real facts of this food also have to be shown and checked. *"Consumer behavior could also change over time in response to new information about GM foods and biotechnology."*[107] If there is honest attitude to try to make customers happy, the GMO food engineers have to pay much more attention to test their final product. And also serve the real information to customers, or continue working on it until they really deserve to harvest the products of their work.

*"Although the price level of food products remains an important element in consumers' purchasing decisions, especially for lower-income households, consumers are increasingly valuing non-price attributes linked to food products (e.g. healthy foods) and food production methods (e.g. free-range eggs)."*[108]

The market trends are in some GMO approved countries still changing, and they are again turning against GMO products. This global revolution is more likely to continue. And of course no serious business wants to be on the loosing side. *"The price of GM varieties in the GMO-critical countries declines further because of the almost complete rejection of these products, whereas the price of non-GM foods increases."*[109] The market already crystallized itself, so the changes for now are not very likely to happen. Producers will follow the needs and will set up for satisfying them in a long term. Everyone who will not comply will be left behind.



[106] *Id.* at page 189.
[107] *Id.* at page 27.
[108] Arie Oskam, Gerrit Meester and Huib Silvis (ed.), *EU policy for agriculture, food and rural areas*, (Wageningen Academic Publishers, 2010). page 255.
[109] Robert E. Evenson and Vittorio Santaniello (ed.), *Consumer Acceptance of Genetically Modified Foods*, (CABI Publishing, 2004). page 222.

# CONCLUSION

The futuristic predictions became a reality twenty years ago. GMO foods are available on the market in their final shape. Still the trends on the market show some uncertainty towards them. GMO food is not treated as it was expected by it inventors. Consumers treat it like a black sheep in a flock.

Success of a certain product depends on the first impression of consumers. If the first impression is negative, it is very hard to keep it on the market. The first, and probably the biggest, mistake was that the producers wanted to hide the GMO origin from the consumers. This secrecy has invoked the distrust of the most important category in the trade line, the final buyers. Secrecy, fraud, hidden characteristics and many other old tricks previously used in trade have discredited GMO food in the beginning. It is still not recovered, and the main aim of why it was made in a certain way is yet not explained. Consumers want to know how the introduced gene is going to benefit them.

Lack of clear scientific evidence, unproven qualities and distrust all invoked the Precautionary principle. This is visible in the consumer's attitude and in the EU regulations. It is evident that this principle plays now a main role in trade issues which regulate GMO food.

In the meanwhile new trend have conquered the consumer's taste. Eco, Green and similar Home grown products are getting bigger market shares. GMO food is being pushed back even in countries where it has a significant market share. Food trade is about to get a new standard, the renaissance of everything what is traditional and could be connected with eating is getting a

bigger market share. It is obvious now that not everything will be modified. Accordingly the GMO business is loosing, and it will have to step back in front of the new worldwide culture of food consuming.

GMO products are and will be allowed in the EU. But their importance will continue to fall as consumers discover the tastes and beauties of the nature and forgotten qualities. Globalization trends are loosing and the market of capital will have to reset its priorities. The basics have to be rebuilt so a new era of global trade could begin with more respect to consumer's tastes than to economical values. Of course food will cost more in the future, as many qualities of it will also be guaranteed. This will make Agribusiness a major player in the global investment market.

Farmers, producers and traders do have to cooperate, but the main idea will have to be the consumer's satisfaction, since this is the guarantee of a constant or even better the rising income of the profit.

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