CONSUMER INFORMATION ON GM-FOOD IN SWITZERLAND AND WTO LAW

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A INTRODUCTION

The title of this workshop – SPS and TBT: Tools for Harmonization of national legislations, or tools for fragmentation of markets – appears to state a rhetorical question. The WTO’s objective is to provide for sustainable market liberalization, thus, allowing for the integration of markets to the benefit of producers and consumers alike. On first sight, harmonization of domestic regulatory measures would be the foremost objective of the two agreements. The elimination of illegitimate, regulatory measures covered by the TBT Agreement would contribute to greater market harmonization, larger economies of scale and thus higher consumer and producer benefits.

Unlike for tariffs, the evaluation of the trade restrictiveness of domestic regulatory measures is complicated by uncertainties over their effects. Common sense suggests that “regulatory protectionism” occurs. However, distinguishing between protectionist and non-protectionist domestic regulations raises questions of legitimacy and adequate standards of review (subsidiarity) to a much larger extent than for border measures. There can be no doubt that the WTO Agreements do not prohibit the taking of domestic regulatory measures per se. Rather, the Agreements’ objectives are to prevent that regulatory measures are taken for “protectionist” (i.e. illegitimate) purposes and are neither discriminatory nor impair trade more than necessary. Furthermore, from the beginning, GATT recognized that a number of national interests could even justify taking discriminatory trade-restrictive measures under the term of general exceptions (Art. XX GATT). Consumer protection objectives were among them. Art. XX(d) GATT explicitly states that nothing in the GATT should be construed to

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1 See the introductory contribution by RIOS/LUCENTI, p. ...

2 See the introductory paragraph of Art. XX GATT: “[N]othing in this agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures […] necessary to protect public morals, […] to protect human, animal or plant life or health; […] to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement; […]” etc.
prevent the adoption or enforcement of measures necessary to secure compliance with laws or regulations relating to the prevention of deceptive practices.

Today, many WTO Members have enacted national legislation that protects consumers from deception by producers and other market participants. Such legislation is designed to correct the informational imbalance on the market. However, domestic approaches to consumer protection have evolved since the adoption of the GATT in 1947. With increasing “technologyzation” of the industry and ever more rapid evolution of that technology for the production of consumer goods, deception is not the only problem consumers are facing today. There is an increasing information imbalance between producers and consumers. As a result, the passive objective of preventing consumer deception has been supplemented with active protection of consumers through standardization and pro-active consumer information.

Active information of consumers has even been formulated in fundamental rights terms as “consumer free choice”, a term also employed by the Swiss Law on Gene Technology (GTL, SR 814.91) in its Art. 7 (“Wahlfreiheit der Konsumentinnen”/“libre choix des consommateurs”). The shift in terminology implies a shift in focus. Today, informed choice on the market of consumer goods is not possible without active governmental involvement. In light of ever more rapid technological innovations in the production of consumer goods comprehensive information of consumers has become an illusion. A choice has to be made on what information is relevant to consumers. Only the political process can guarantee the legitimacy of this choice.

Consumer free choice is an important argument in the international discussions on labeling of food products the production of which involves genetically modified organisms (GMOs). Many WTO Members have installed and strengthened their regime on pre-market approval and post-market monitoring of GM-food with the objective that only save GM-food products find their way to the market. Nevertheless, additional mandatory labeling schemes have been promulgated with the objective of providing information to enable consumers to make their own choice whether they want to purchase GM-food or not. Many of these consumers have environmental and health concerns regardless of the safety measures in place. The product category of “GM-food” is not as easy to define. “GMOs” play an important role in food production today. However, their application varies from product to product.

Besides the EU Switzerland is one example of a WTO Member who has implemented legislation both on GM-food safety and labelling. Switzerland was one of the first countries establishing a mandatory labeling regime for GM-food in 1995. The scheme has been modified several times and a major revision is planned to enter into force on January 1 2005. The latest revision will bring Swiss GM-food labeling more in line with recent EC legislation on GM food and feed adopted in 2003. This paper will review the existing and planned Swiss labeling scheme for GM-food. It will compare it with analogous EC legislation and provide an analysis of pertinent issues relating to the WTO Agreements.

**B THE DEFINITION OF FOOD AND GMOs IN SWISS LAW**

Both food law and GMO legislation are highly complicated legal areas due to the technicality of the subject matter regulated. Nevertheless, understanding the different categories of food

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3 Food produced with the involvement of GMOs untechnically will be called “GM-food” in this paper. Only food products defined as GM-food products by Swiss legislation is included in this term (see below, p. 7).


5 See SFOPH: Consultation: Revision of Food-Ordinance due to the Gene Technology Statute, pp. 2-3.
and GM-food products is essential to an assessment of the legal rights and obligations of consumers and food operators and the applicable procedural and administrative rules.

To provide an empirical basis for this paper the list of ingredients of a randomly chosen food product was analyzed. Neither the nature nor the product name will be revealed, however. The list reads as follows:

- Cereals 23.7% (rice flour, corn grits), sugar, sugared evaporated milk 11.2%, glucose syrup, low fat powdered milk, plant oils, invert sugar syrup, wetting agents (sorbit, glycerine), hardened plant oils, cocoa powder 4.9%, lactose, calcium carbonate, wheat starch, dextrose, salt, low fat cocoa, emulsifier (soy lecithin), antioxidants (ascorbic acid, tocopherole), flavour (vanillin), vitamins, acid regulator (trinatriumphosphate), iron.

The product does not include any GM-food labelling but does not indicate to be GM-free either. For many of the ingredients listed a production process that at one step or the other involves a GMO exists. For others researchers are working on developing GM-varieties of the ingredient or on new production methods involving GMOs. In the following sections the ingredients of this food product will be used to explain the terms used in Swiss legislation both on food and on biotechnology. This paper does not suggest that any of the ingredients analyzed did involve a GMO at any of its productive steps. All arguments made with regard to these sample ingredients are purely hypothetical.

1 What is food according to Swiss law?

Food as defined by Swiss food law includes all products, which contribute to the sustenance or build-up of the human organism and are not marketed as drugs (Art. 3.2 Food Law, SR 817.0, hereafter FL). According to this definition it is of no importance whether a certain product is marketed as food product as such or used as an ingredient in another food product. Both categories are treated identically for purposes of the statute. Furthermore, the definition of food includes so-called food additives, which are used in food production to achieve certain desired attributes (color, taste, texture, nutritional value, shelf life, etc.). In the Food Law they are treated identically to food and food ingredients. It is at the level of an ordinance that food-additives are defined individually. The Food Ordinance (SR 817.02, hereafter FO) defines food additives as substances added to food for technological or sensory reasons as well as substances added to give the product a desired taste or odor (flavors). Vitamins and minerals are regular ingredients, if they are used to change the nutritional value of a product (fortification). They also have technological applications however. In that case they are treated as food additives and are usually called by their chemical name (from the example above: ascorbic acid instead of vitamin C or tocopherole instead of vitamin E).

It is up to the Federal Council to list permissible food products in detail (including ingredients and additives) and regulate their naming (Art. 8.1 FL). The Council has done so on the 262 pages of the Food Ordinance. The ordinance again contains a large number of sub-delegations...
to the Federal Department of Home Affairs that has promulgated 11 other ordinances including on food additives, contaminants, food hygiene and authorization procedures for GM-food. Food products listed in the Food Ordinance can be marketed without individual authorization. However, new food products need an individual authorization before marketing is allowed.

The Food Law also delegates to the Federal Council the regulation of certain substances and production processes that can have adverse effects on human health (Art. 9 FL). Art. 9(b) explicitly includes gene technological processes for the production or treatment of food. The provision provides a legal basis to regulate a third generic category of substances used in food production, the so-called processing aides. Processing aides, according to Art. 16 FO are substances used for technological reasons in the processing of feedstock, semi-manufactured food products, or food products. If added to food during production they have to be removed unless technically impossible. Processing aides include different groups of substances. In the context of biotechnology enzymes constitute a very important group. One of the best-known enzymes is chymosin, which is used in cheese production to clott the milk. It is produced from calf stomachs but does occur naturally in a fungus. In many instances only with the advent of transgenic biotechnology production of food with the help of enzymes has become profitable. Purified enzymes are cell free and do not contain any other macromolecules such as DNA.

With this categorization the nature and function of the different ingredients of the example product shown above can be explained. At the same time it is important to stress to what extent GMOs could play a role in the production process of these ingredients. Regular ingredients include the following:

- **Rice flour and corn grits** are milled from rice and corn; theoretically both GM-rice and GM-corn could be used for production; in Switzerland several varieties of GM-corn have been authorized but no GM-rice; no GM-corn is currently used in production of corn grits in Switzerland.

- **Sugar** is produced from sugar beet or cane; the generic name “sugar” always refers to pure and crystallized saccharose (regular sugar); of both plants GM varieties exist but are not currently marketed in Switzerland; crystallized sugar does not contain any proteins (incl. DNA); imported sugar from GM-beet or corn would need authorization.

- **Sugared evaporated milk** is produced from milk and sugar (see above); while regular milk contains between 87 and 88% of water, evaporated milk contains between 25 and 75% of

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11 See Annex 1 FO.
12 See the definition in FAO (2004), para. 2.2: “Enzymes are biological catalysts used to facilitate and speed up metabolic reactions in living organisms. They are proteins and require a specific substrate on which to work. Their catalysing conditions are set within narrow limits, e.g. optimum temperature, pH conditions and oxygen concentration. Most enzymes are denatured at temperatures above 42°C. However, certain bacterial enzymes are tolerant to a broader temperature range. Enzymes are essential in the metabolism of all living organisms and are widely applied as processing aids in the food and beverage industry.” Other processing aides include yeast, baking agents, acids, etc.
13 See below, p. …
14 FAO (2004), para. 2.2.
15 See Art. 207.1 FO.
water\textsuperscript{16}; cows can be fed with GM-grains and other GM-feed; several GM-feed products have been authorized in Switzerland.\textsuperscript{17}

- \textit{Low fat powdered milk} is produced from milk from which fat and most of the water (milk contains between 87 and 88\% of water) is extracted (evaporated).\textsuperscript{18}

- “\textit{Plant oils}” refers to a mixture of different plant oils\textsuperscript{19}; all of these oils can be produced from GM-oil seeds; usually such oils are refined and no proteins (incl. DNA) remain in the oil.

- \textit{Hardened plant oils}\textsuperscript{20} are emulsified or hydrogenated plant oils and fats; their main application is margarine but they are also widely used in candy.

- \textit{Cocoa powder} is produced from cocoa beans; there are no GM-cocoa plants used for agricultural production so far but research is under way with the aim of modifying various aspects of the beans (pest resistance, fat content, higher yields, sweetness).\textsuperscript{21}

- \textit{Vitamins} are vital substances for the human metabolism which the human body cannot synthesize by itself\textsuperscript{22}; many vitamins today can be produced with the help of transgenic biotechnology from microorganism that transform other substances into vitamins; in Switzerland, two vitamins have been authorized for food production (a vitamin B2 and a vitamin B12).\textsuperscript{23}

The example list of ingredients contains a number of food additives:

- \textit{Soy lecithin} is an emulsifier which prevents food from separating either during manufacture or package; it can be included in many products such as chocolate, sauces, spreads, etc. and is produced from soy oil or fat; the soy oil used for producing soy lecithin can be refined or not; in the process of refinement proteins and DNA from the soy beans are destroyed; soy is one of the crops genetically modified varieties of which are used in large scale agricultural production in North America, Argentina, Brazil.\textsuperscript{24}

- \textit{Glucose syrup} (also dextrose) is used as a sweetener to replace regular sugar (saccharose) because of its different physical properties (e.g. it does not crystallize as easily as regular sugar); it is not as sweet as regular sugar however; it is produced industrially from corn starch by so called hydrolyzation, which is a chemical process that breaks starch into the sugars it is composed of with the help of enzymes (Amylase); most of the enzymes used in

\textsuperscript{16} See Art. 76 FO.
\textsuperscript{17} For a list of approved GM-feed see the Ordinance on the GMO-feed list (SR 916.307.11).
\textsuperscript{18} Low-Fat milk powder may contain only 1.5\% fat; whole milk powder must contain between 26 and 42\% fat; See Art. 77.2, 77.4 FO.
\textsuperscript{19} See Art. 100.1 FO.
\textsuperscript{20} See Art. 101.2 FO.
\textsuperscript{21} Source: http://www.transgen.de/.
\textsuperscript{22} Report of the British Competition Commission on the merger BASF and Takeda Chemicals in 2001, Appendix 4.1: http://www.competition-commission.org.uk/rep_pub/reports/2001/456basftake.htm#full: “Vitamins are organic compounds, which are essential in small amounts to the life and health of humans and animals. Vitamins by definition cannot be synthesized in the body, so they must be consumed regularly as part of the diet. Some animals are able to synthesize their own requirements for some of these compounds, but monogastric animals need all the vitamins in their diet in natural or synthetic form.”
\textsuperscript{23} Switzerland has approved a vitamin B12 produced biotechnologically from Aventis Pharma SA and a vitamin B2 from Roche (source: http://www.bag.admin.ch); see also the descriptions of ascorbic acid and tocopherole below.
\textsuperscript{24} Source: http://www.transgen.de/.
that process today are produced with the help of GM microorganisms; GM varieties of corn can be used as feedstock in production.\textsuperscript{25}

- **invert sugar syrup** is a downstream product of glucose syrup; with the help of a gene technologically produced enzyme (Glucose-Isomerase) part of the glucose is transformed into fructose which has a much higher degree of sweetness than glucose; the result is a sweetener with similar sweetness and taste as regular sugar but different physical properties; in the U.S. invert sugar is known under the name of “high fructose corn syrup” which has almost replaced regular sugar in food manufacturing.\textsuperscript{26}

- **sorbit** is mainly a wetting agent that prevents food products from getting dry; it is a sugar naturally occurring in fruits and the mountain ash from which it used to be produced; today it is produced from corn starch or directly from glucose through chemical processes involving enzymes, which are usually produced from GM microorganisms.\textsuperscript{27}

- **glycerine** is a bulking agent\textsuperscript{28} to give food more volume without contributing to its energetic value; it is produced naturally from coconut oil or synthetically from propylene; research is ongoing to modify coconut plants to grow coconuts with a higher content of glycerine.\textsuperscript{29}

- **Lactose** is produced from whey, which is a by-product in cheese fabrication that uses chymosin to clot milk; chymosin is traditionally extracted from calf stomachs but is also naturally produced by a fungus; gene technological innovations today allow for the production of chymosin with the help of microorganisms.\textsuperscript{30}

- **ascorbic acid** is used as an anti-oxidant\textsuperscript{31}; it is the same substance as vitamin C but when used as an additive it is called by its chemical name; industrially it is produced in a complicated 6-step chemical process; in this process the base substance is glucose, which can be produced from corn starch (eventually from GM-corn) with the help of enzymes (produced from GM microorganisms).

\begin{itemize}
\item Before the production of enzymes with the help of gene technology starch was split up with the help of acids. The advantage of enzymatic hydrolyzation is that splitting up of starch can controlled better, which facilitates processing of the resulting sugar syrups. Enzymatic hydrolyzation was economically not profitable before less-expensive gene technologically produced enzymes were available; source http://www.transgen.de.
\item Source: http://www.transgen.de/.
\item Source: Id. and http://de.wikipedia.org.
\item Other bulking agents include e.g. polydextrose or cellulose; polydextrose is produced synthetically from glucose, sorbit and citric acid and is mainly used as a bulking or wetting agent. All the base substances can be produced directly from GMOs or GMOs can be used in their production; cellulose can be used as a bulking agent to add volume to a food without significantly contributing to its energy value; it can be used for many foods including sauces and confectionery and is produced from trees which can be genetically modified (e.g. New Zealand and Australia have approved a GM-cellulose for food use, see …..).
\item Source: http://www.transgen.de/.
\item See FAO (2004), para. 2.2. In Switzerland two GM-enzymes for cheese production are approved: “Chy-Max” by Christian Hansen and “Maxiren” by Gist Brocades (see http://www.bag.admin.ch).
\item Report of the British Competition Commission on the merger BASF and Takeda Chemicals in 2001, Appendix 4.1: http://www.competition-commission.org.uk/rep_pub/reports/2001/456basftake.htm#full: “Vitamin C is also commonly added to food and beverages as a natural antioxidant, to preserve colour, aroma and nutrient content rather than for its action as a vitamin. It is also added to flour to improve baking qualities.”
\end{itemize}
- Tocopherole is used as an anti-oxidant too; it is the same substance as vitamin E, but is listed as tocopherole if used as a food additive; it prevents plant oils from getting rancid; naturally occurring e.g. in oil seeds, nuts, green leafy vegetables and wheat sprouts; tocopherole for food use is usually extracted from soy oil (which can be produced from genetically modified soy, see above); 90% are produced synthetically mainly for feed use.  

- Vanillin is food flavor, which is considered a food additive according to Art. 8 FO; it is mainly produced petrochemically from catechol (generally made from phenol); there is research underway to produce catechol from glucose with the help of GM-microorganisms.  

Processing aides do not have to be included in the list of ingredients. As the above examples show, they are playing an important part in food production and are nevertheless “present” in the production process of the ingredients and additives in the example. The examples illustrate that food production is a highly industrialized process involving a multitude of productive steps. Agricultural products such as vegetables, fruits and crops (feedstock) often constitute only the basis for food production. GMOs can play a role in many ways at different steps of production. Therefore, the next section will explore how the traditional categories of substances relevant to food law relate to newer legislation on transgenic biotechnology.

2 What is “GM-food” according to Swiss law?

What is generally called “GMOs” in public debate incorporates a wide range of different products, which underlie different rules sometimes from different statutes. Genetically modified organisms include cellular and non-cellular (e.g. viruses) entities, which are capable of passing on hereditary information (DNA or RNA) and have been modified in a way not occurring under natural circumstances. Typical examples of GMOs that are used as food include GM varieties of corn, soy, wheat, sugar beet, rape, potatoes, tomatoes, rice and bananas and other fruits. Treated on equal terms are food products containing GMOs (e.g. yoghurt containing pro-biotic GM-bacteria). The definition excludes organisms, which are not capable of transmitting hereditary information. Milled GM-corn and rice for example do not contain any GMOs anymore. However, modified DNA is still present.

32 Source: http://www.transgen.de/.  
33 For the different forms of aromas see Annex 6, para. 24 Ordinance on food additives (SR 817.021.22).  
34 Source: http://www.uyseg.org/greener_industry/. According to this site other research concentrates on producing synthetic vanillin from sugar beet pulp (by-product of sugar production) with the help of microorganisms.  
35 GM processing aides need to be authorized separately according to Art. 1 and 2 VBGVO (SR 817.021.35).  
36 A clear understanding of this complicated terminology is important for the different issues relevant for an analysis of Swiss legislation under WTO rules. This paper only considers “GMOs” in food. It has to be kept in mind that there is a large range of applications of “GMOs” in other sectors.  
37 Art. 5.1, 5.2 GTL.  
38 The EC uses a different terminology. The GM-Food Regulation uses the terms food “consisting of” or “containing” GMOs respectively with regard to whether the food product is composed of one single GMO only or whether it does contain GMOs as one (some) of the gradients only.
A second, much more complicated category of food relevant for GM-food regulation are so-called products “obtained from” GMOs. The EC uses the term “obtained from” as a general, non-technical term relating to any form a product can be derived from a GMO. This includes, according to EC-terminology, both food “produced from” and “produced with” GMOs. The difference in the two categories relates to the role that GMOs play in the production process. Food produced from GMOs relates to food “derived, in whole or in part, from GMOs but not consisting of or containing GMOs”. The meaning of this definition can be understood by reference to recital 16 of the GM-Food Regulation, which stipulates that the “determining criterion is whether or not material derived from the genetically modified source material is present in the food or in the feed.” This definition would include e.g. flour produced from GM corn (the “genetically modified source material” in this case) but also products such as oil from GM seeds, (soy, corn, rape or cotton seeds) as well as soy lecithin or hydrolyzed soy, corn starch, glucose syrup, invert sugar, sorbit, etc. It is important to note that “material derived from the genetically modified source material” does not necessarily have to contain any hereditary material from the genetically modified source material. Food such as sugar from GM sugar beet, alcohol from GM bacteria or highly refined oil from GM seeds would be covered by the definition “produced from GMOs” despite these food products not containing any genetically modified DNA anymore. For food produced with GMOs, GMO-derived products do not remain in the final food product. This includes food manufactured with the help of GM-derived processing aids such as products obtained from animals fed with genetically modified feed or treated with genetically modified medicinal products, cheese produced with enzymes (chymosin) derived from genetically modified fungi or bacteria.

The Definition in Swiss food law uses “obtained from” as a technical term. It is not further defined in FL or FO. Yet, for pre-market approval the Ordinance concerning the authorization procedure related to GM-food (AOGMO, SR 817.021.35) specifies that only GM-products “directly obtained from” a GMO need to be authorized. These so-called first generation GM-products have to be distinguished from latter generation GM-products. A circular of SFOPH clarifies the distinction between first generation and second generation GM-products. A GM-product of the first generation is obtained in chemically unaltered form from a plant, a microorganism or another organism by physical or chemical processes such as filtration, centrifugation, concentration, refining or distillation. This would include rice flour and corn grits from GM rice or corn, corn starch from GM corn, sugar from GM sugar beet, plant oils…

39 The German terminology “Erzeugnisse, die aus gentechnisch veränderten Organismen gewonnen sind” (Art. 3.2 GTL) has a parallel in the EC GM-Food Regulation. Recital 16 of this regulation uses the term „gewonnen“ in the German version, which is translated as „obtained from“ in the English version of the Regulation. The French version uses “élaborer à partir de” the French text of GTL uses “issue de”. In fact, the non-authentic translation of GTL uses the term “obtained from” in Art. ….. see http://www.umwelt-schweiz.ch/buwal/eng/fachgebiete/fg_biotechnologie/national/lois/index.html.
40 See recital 16 of the GM-Food Regulation.
41 Art. 2.10 GM-Food Regulation.
42 Soy oil is refined to remove solvents and other contaminants. It is heated to 120 C. In this process DNA and proteins are destroyed and cannot be detected anymore (source: http://www.transgen.de/).
43 Soy lecithin can be produced from refined soy oil. In this case, it does not contain any detectable DNA or proteins anymore. If produced from not refined soy oil, DNA can still be detected (source: http://www.transgen.de).
44 Degreased soy protein is chemically altered with acids or enzymes for use as condiments and in soy sauce. Frequently, the DNA is destroyed in this process (source http://www.transgen.de).
45 See recital 16 of the GM-Food Regulation.
46 Circular No. 9 of SFOPH.
from GM oil seeds, cocoa powder from GM cocoa beans, soy lecithin from GM soy, glycerin from coco nuts or a vitamin produced from a GM-microorganism (e.g. vitamin B2 or B12). The product becomes a second generation GM-product when the first generation product is transformed into a chemically altered substance. This happens when corn starch is hydrolyzed to glucose syrup and further processed to high fructose corn syrup, sorbit or ascorbic acid or vanillin.\textsuperscript{47} Both first and second-generation GM products are products obtained from a GMO.\textsuperscript{48} In the example list of ingredients there are included products which would not fall under this definition of food products obtained from GMOs: milk produced from cows fed with GM-feed; and downstream products of corn starch produced from GM corn, despite the use of GM-enzymes (glucose and food ingredients produced from glucose).

It is important to note that in order for a food product to fall under the definition “obtained from a GMO” – regardless of whether it is a first or second generation GM-food product – it is irrelevant whether the end product still contains modified DNA or not. Glucose produced from GM corn and glucose produced from conventional corn are identical products. No difference in their make-up exists. The distinction is based solely on the fact that a GMO (GM corn) was the feedstock used in production. Furthermore, the use of an enzyme obtained from a GMO does not change a conventional product into a product obtained from a GMO. The production of glucose from conventional corn with the help of GM amylase does not result in GM-glucose. Cheese produced from milk with the help of GM chymosin does not lead to GM cheese. Neither does the use of GM-feed change the nature of an animal product. Milk, meat or eggs from animals fed with GM-feed do not constitute products obtained from a GMO. However the direct use of microorganisms in food production does create a food product obtained from a GMO. Ascorbic acid can be produced from glucose in a chemical process involving GM enzymes. It can also be produced via fermentation by using GM-microorganisms directly from glucose. Only the second “variety” of ascorbic acid constitutes a product obtained from a GMO according to Swiss law regardless of the identity of the two substances.

C Existing rules on labelling of GM-food in Switzerland

1 Positive Labeling

Swiss legislation on GM-food incorporates a comprehensive labeling scheme. Art. 17 GTL mandates that all GMOs have to be labeled when placed on the market to guarantee free choice and prevent deception of consumers. Accordingly, all food products consisting of GMOs must be labeled with “genetically modified” or “genetically modified”. Analogous labeling is required for food products, which contain GMOs as their ingredients. GTL does not mandate labeling of products (including food and additives) obtained from GMOs but delegates the regulation of such products to the Federal Council who has regulated the labeling of food products obtained from GMOs in Art. 22b FO. According to this provision any food, food additive or food supplement which is a GMO, contains GMOs or is obtained from a GMO has to be labeled with “obtained from genetically modified X” with X being the GMO a product has been obtained from.

\textsuperscript{47} For all of the foregoing, see Id.

\textsuperscript{48} See the administrative statement to the proposed modification of the Swiss GM labeling regime (hereafter \textit{Administrative Statement}), p. … (available at: http://www.bag.admin.ch/verbrau/lebensmi/imrecht/Revision%20GVO/d/index.htm)
Art. 22b.7(b) provides for an exception if the GM-food product has been separated from the organism. This constitutes a notable difference to the EC’s labeling regime that does not know this exception. It allows for treating products obtained from GMOs like their conventional counterparts if both are identical, i.e. not containing any DNA. In fact, many of the first and second generation food products obtained from GMOs in the example list of ingredients would fall under this exception: sugar from GM beet, refined plant oils from GM oil seeds, vitamins produced from GM microorganisms, soy lecithin from GM soy, corn starch from GM corn and its downstream products (glucose syrup, high fructose corn syrup, sorbit and ascorbic acid). None of these products contain detectable traces of DNA residues. Physically, they are identical to conventional counterparts produced without the help of GMOs.

Art. 22b.7(a) contains a second exception from mandatory labeling if ingredients that consist of GMOs or are obtained from GMOs do not surpass 1%. No further condition is tied to this exception. Under the current regime, labeling is not required even if there are technical solutions for eliminating the DNA remaining in the food product. The producer is under no obligation to go even below the 1% threshold.

The following table provides an overview of the labeling requirements mandated by Swiss food law:

<table>
<thead>
<tr>
<th>Food category</th>
<th>Labeling example</th>
<th>Example products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food consisting of a GMO</td>
<td>Soybeans (genetically modified)</td>
<td>e.g. corn, soy, tomato, yeast, rice</td>
</tr>
<tr>
<td>Food obtained from a GMO containing modified DNA</td>
<td>Rice flour (produced from genetically modified rice)</td>
<td>corn grits from GM corn, unrefined plant oils from GM oil seeds,</td>
</tr>
<tr>
<td>Food obtained from a GMO not containing modified DNA</td>
<td>No labeling</td>
<td>Corn starch from GM-corn, soy lecithin from GM-soy, glucose from corn starch from GM corn</td>
</tr>
<tr>
<td>Food containing GM microorganisms (regardless of them still capable of passing on DNA)</td>
<td>Yoghurt produced with genetically modified lactobacillus</td>
<td>e.g. yeast, lactobacillus</td>
</tr>
<tr>
<td>Produced with processing aids produced from GMOs (no food product obtained from a GMO)</td>
<td>No labeling</td>
<td>e.g. cheese produced with GM-chymosin, lactose produced from whey, glucose produced from non-GM corn starch; eggs, milk, meat from</td>
</tr>
</tbody>
</table>

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49 The wording of this provision is not very felicitous; interpreted literally it only regulates the case where a GMO (i.e. an organism capable of passing on hereditary information) is removed from a food product; it would not apply to the case where a food product does not contain any organisms but only modified DNA (e.g. corn flour from GM corn, unrefined plant oil from GM oil seeds).

50 Food has to be labelled, however, if it contains microorganisms which have been used for “technological” purposes (Art. 22b.3 FO). This would include GM probiotic bacteria in yoghurt.
2 Negative Labeling

Art. 17.5 GTL mandates the Federal Council to regulate negative labeling of products not containing any GMOs. Such labeling is not mandatory but food operators have to conform to the requirements in Art. 22b.8 FO in order to label their products as GMO-free.\textsuperscript{51} Art. 22b.8 FO goes beyond this mandate and regulates labeling of food products as “produced without gene technology”. Food can be labeled as such only if neither GMOs nor modified DNA are present in the end product. Additionally, no GMO or product obtained from a GMO may be used in the production of the food product. This definition includes processing aides such as enzymes produced from GM-microorganisms. A producer using negative labeling must be able to provide comprehensive evidence that no such product has been used in the production of the food product. Finally, inadvertently present GM-food ingredients may not have a bigger share than 1\%\textsuperscript{52}

GM-food and food “produced without gene technology do not represent opposites. There is a large, third category of food products which do not have to be labeled as containing GMOs or being obtained from a GMO but cannot be labeled as “produced without gene technology”.

D PROPOSED REVISION OF SWISS LABELLING REQUIREMENTS FOR GM-FOOD

Currently the Federal Council is planning a revision of the rules of the Food Ordinance relating to labeling of GM-food. A public consultation was terminated on August 23, 2004. The revised rules are scheduled to enter into force on January 1, 2005. The administrative statement to the proposal considers extensively the new EC regime on GM-food labelling. Furthermore, it refers to Codex Alimentarius initiatives on GM-food currently underway.\textsuperscript{53} Surprisingly, no single word on WTO-Agreements is lost despite the administrative statement containing an entire chapter on relevance of international law the amendment. This is even more surprising as GM-food is one of the most contentious issues in current WTO practice, a case on the EC’s moratorium is pending before a panel and a case on the EC’s labeling regime might be brought by the U.S. in the near future. The only explanation is that the main point of orientation for Switzerland is the European market.

1 Extended labeling requirement

The planned amendment of FO will remove the current exception in Art. 22b.7(b) FO for labeling of food obtained from GMOs but not containing any DNA anymore. According to the administrative statement this amendment equaled a public demand or at least was not opposed by the public.\textsuperscript{54} This change will require a large number of additional food ingredients and additives constituting first and second generation GM-products to be labeled. Many of the examples above have shown that these products are not different from their conventional counterparts (if they exist at all) other than a different production method was used.

\textsuperscript{51} No labeling other than that prescribed in Art. 22b FO is permissible, whether positive or negative (see. Art. 22b.9).

\textsuperscript{52} The Federal Court has decided that an adventitious presence of below 1\% does not impede the right to use the label “organically produced” which requires that no gene technology is used in production; see BGE 2A.357/2002.

\textsuperscript{53} For details on the Codex activities see the paper by Laura ATLEE.

\textsuperscript{54} Administrative Statement, p. 8.
Products from starch hydrolyzation are an example in point. Glucose syrup used to be produced from cornstarch with the help of acid. It is now produced with enzymes from GM-microorganisms. However, regardless of the production process, the end product remains the same and does not contain any GM material.\textsuperscript{55} Labeling will now be required whenever the feedstock used in production was a GM-variety of corn. As long as conventional corn was used no labeling will be required despite cornstarch produced from GM-corn and conventional corn being identical products. Downstream products such as high fructose corn syrup or ascorbic acid will have to be labeled if ultimately produced from a GMO regardless of how many productive steps are necessary to get to the end product. Labeling of downstream products of corn starch is not required if the corn the starch was produced from was non-GM. The use of GM-enzymes does not make any difference. The same is true for cheese produced with the help of GM-chymosin or lactose extracted from whey, the by-product of cheese production.

A further exception are animal products even if the animal was fed with GM-feed. These products just as food produced from conventional feedstock with the help of GM-enzymes are still not even considered to be GM-food. The table illustrating the different labeling requirements in Section C1 of this paper, thus, has to be modified as follows (changes highlighted):

<table>
<thead>
<tr>
<th>Food category</th>
<th>Labeling example</th>
<th>Example products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food consisting of a GMO</td>
<td>Soybeans (genetically modified)</td>
<td>e.g. corn, soy, tomato, yeast, rice</td>
</tr>
<tr>
<td>Food obtained from a GMO containing modified DNA</td>
<td>Rice flour (produced from genetically modified rice)</td>
<td>corn grits from GM corn, unrefined plant oils from GM oil seeds,</td>
</tr>
<tr>
<td>Food obtained from a GMO not containing modified DNA</td>
<td>Soy lecithin (produced from genetically modified soy), ascorbic acid (produced from genetically modified corn)</td>
<td>Corn starch from GM-corn, glucose from corn starch from GM corn</td>
</tr>
<tr>
<td>Food containing GM microorganisms (regardless of them still capable of passing on DNA)</td>
<td>Yoghurt produced with genetically modified lactobacillus</td>
<td>e.g. yeast, lactobacillus</td>
</tr>
<tr>
<td>Produced with processing aids produced from GMOs (no food product obtained from a GMO)</td>
<td>No labeling</td>
<td>e.g. cheese produced with GM-chymosin, lactose produced from whey, glucose produced from non-GM corn starch; eggs, milk, meat from animals fed with GM-feed</td>
</tr>
</tbody>
</table>

2 Traceability

The ordinance will introduce a so-called traceability regime designed to allow the tracing of GM-products once market authorization has been granted (post-market monitoring). Such post-market monitoring requires documentation of GM-food from for all productive and distributive steps. Food operators are mandated to draft documents that contain information

\textsuperscript{55} Not even the enzymes contain any macromolecules like DNA, see above, p. ….
on the GMOs or GMO-obtained products they are delivering. The documentation has to be passed on downstream along with the product in order to inform the operators in the production and distribution chain. The purpose of the traceability system is two-fold:

- **Consumer safety:** traceability will allow following the product once authorization is granted. If new threats to human health or the environment become known, which were unknown at the time of authorization, products can be recalled and consumers can be informed quickly about potential threats.

- **Implementation of labeling of GM-food not containing any DNA:** While the existing FO does not require labeling of GM-food from which all traces of modified DNA have been removed, starting from January 1, 2005, such products will have to be labeled. Without extensive documentation, the downstream market operator and governmental inspectors will not have a way to learn whether GMOs or products obtained from GMOs have been used in the process of production. The documentation requirements imposed by the traceability regime will provide such information.

For the purpose of this paper only the second objective of the traceability regime is relevant. The proposed regime adopts the EC’s one step forward one step back approach that requires market operators to keep information on where they acquired the GM-food from (one step back) and where they sold it to (on step forward). Because of practicability reasons distributors will not have to collect information on consumers the GM-food products have been sold to. Documentation has to be retained for five years.

Food importers not only will be under an obligation to document the use of GMOs and to pass on that information downstream they also have to ensure that they obtain adequate documentation from their foreign partners. Practically, this means that the food producer abroad has to start documenting only for exports to Switzerland. It will also have to design its production chain in a way that allows to learn whether the food product has been obtained from a GMO. Ultimately, it will have to require their suppliers to provide information on their production processes. As an example, if a food producer exporting to Switzerland uses soy lecithin or vitamins for producing food from a supplier, it will have to request its supplier (maybe located in a third country) to provide information on whether the lecithin was produced from GM-soy.

3 **Adventitious Presence**

Art. 22b.7(a) FO currently contains a threshold of 1% of GM-food ingredients below which no labelling is required. There is no obligation to remove such GM-food ingredients if technically possible or to design the production process or distribution chain in a way that prevents such “contamination.” The proposed amendment will change the threshold and require due diligence of producers in avoiding contamination with GM-products.

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56 Proposed Art. 15a.3 FO describes the information that such documentation must contain.
57 See Administrative Statement, p. 2.
58 Even with the documentation required by the traceability system the efficiency of enforcement remains uncertain. Product testing of GMO-derived products not containing any DNA cannot reveal whether a GMO has been used or not. The only way food inspectors would be able to know was by making random tests in food producing companies. Relating to imported food products, such tests are even more difficult to conduct.
59 See above, p. …..
This threshold will be lowered from 1% to 0.9%, which is the threshold established by the EC in its GM food and feed regulation. Furthermore, the GM-products present have to be adventitious, i.e. the amendment will require that “all appropriate measures have been taken to avoid the presence of such material.” It will be up to the operators to prove that they have taken all such measures with appropriate documentation. Neither the proposed amendment nor the Administrative Statement elaborate on whether the adventitiously present GM-products must be authorized in Switzerland for marketing.

E  WTO issues relating to Swiss legislation

The Administrative Statement does not contain any text on relevant WTO rules. Nevertheless, their importance is out of questions, as has been stated above. Of the WTO Agreements relevant to analyze Swiss legislation on labeling of GM-food the SPS-Agreement, the TBT Agreement and the GATT are most relevant.

1  Does the SPS Agreement apply to the labeling regime?

The TBT Agreement applies only in the case the SPS Agreement does not apply (Art. 1.4 SPSA, Art. 1.5 TBTA). Although the Swiss legislator emphasizes that labeling of GM-food does not serve any health purposes, a panel will look into the issue independently. One of the many arguments made by the opponents of the EC labeling regime is that in fact it constitutes a disguised health measure. Without any doubt, the same argument would be made regarding the Swiss labeling scheme. The argument stems from the fact that while the regulatory instrument used is information of consumers through labeling, the main reason why consumers desire labeling is that they believe GMOs are neither save for the environment nor for human health. Opponents claim that environmental and health protection are the real objectives of GM-food labeling in the EC. Advocates of GM-food labeling argue that consumer information is not only a regulatory instrument but also an aim in itself. A first question to ask would thus be, whether labeling of GM-food as promulgated by Switzerland is within the scope of the SPS Agreement. No similar case has ever been before a panel or the Appellate Body and it is difficult to predict how such a question would be decided.

Help could be found in EC – Sardines. In this case in the context of the TBT Agreement the Appellate Body considered that the labeling requirement imposed by the EC on different

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60 The Commission and the Council had initially proposed a 1% threshold. The European Parliament objected and wanted a 0.5% threshold. The current 0.9% limit was a compromise between the European Parliament and the Council.

61 Administrative Statement, p. 9.

62 Enforcement of this exception will be difficult. Imagine the above example of the food producer using soy lecithin. How will this producer be able to ever learn whether the soy used to produce the lecithin had been “contaminated” with GM-soy? There is no way to know because lecithin does not contain any modified DNA anymore. The producer would have to be able to mandate the lecithin producer to conduct tests of the soy supplied to it to learn how large the contamination with GM-soy is and if the contamination is too high, it would have to be prepared to purchase different soy only for the lecithin produced for the food producer wanting to export to Switzerland.

63 For a detailed account of the obligations of WTO Members under the SPS and TBT Agreements see the introductory section by RIOS/LUCENTI and the chapter by ATLEE.

64 See the introduction by RIOS/LUCENTI

65 The question whether product safety requirements for GMOs qualify as a SPS measure is analyzed in other sections of this synthesis paper. The relevant question here is whether the fact that consumers want GM-food labeling because of environmental and health concerns makes labeling an SPS measure; see the chapter by ATLEE.
varieties of sardines was neither an effective nor appropriate means to achieve the EC’s objectives.\textsuperscript{66} The EC had argued that its consumers had always associated the term “sardines” with only a specific variety of fish offered for sale. If other varieties were allowed to carry the same name, consumer rights would be violated and market transparency would suffer.\textsuperscript{67} The Appellate Body agreed that effectiveness and appropriateness are “both decisively influenced by the perceptions and expectations of consumers in the European Communities relating to preserved sardine products.”\textsuperscript{68} However, the claimant (Peru) had provided evidence that consumers in most EC Member States had not always associated the name sardines with this one fish variety only. It would, thus, appear that the question whether there is a genuine consumer demand for labeling was one of the decisive question for the Appellate Body. This assessment is confirmed by a statement of the Appellate Body in the \textit{EC – Hormones Case} in which the question whether consumer concerns were genuine were important as well. When analyzing whether the EC’s prohibition on imports of beef of cattle raised with the help of growth hormones “results in discrimination or a disguised restriction on international trade” (Art. 5.5 SPS Agreement) it referred to the established “depth and extent of the anxieties experienced within the European Communities” and “the intense concern of consumers within the European Communities over the quality and drug-free character of the meat available in its internal market.”\textsuperscript{69}

These extracts of WTO jurisprudence can be seen as specifications of the good faith obligation of customary international law. A WTO Member would not be under an obligation to scrutinize consumer demands on their rationality. However, it would not be permitted to create or encourage irrational consumer behavior. As long as a government only responds to genuine consumer demands, it would not violate its good faith obligations. Applied to the question whether Swiss GM-food labeling is an SPS or a TBT measure, this would mean that as long as consumer concerns are genuine, even if irrational, and not encouraged by governmental activities, Switzerland may require labeling of GM-food without the measure becoming an SPS measure. There shouldn’t be a requirement that a majority of consumers demand labeling. Labeling of GM-food in Switzerland should be fully compatible with this requirement.

Furthermore, there should not be too many requirements placed on the actual design of the measure. Adequacy and Efficiency of the measure should not be scrutinized when asking whether it serves the objective it purports. In other words, proportionality of a measure should not be relevant for its purpose. This is the approach the Panel \textit{Korea – Beef} employed. It included some \textit{obiter dicta} on whether Korea’s measure was necessary in order to ensure compliance with domestic measures on deceptive practices (Art. XX(d) GATT). It stated that it would recognize “that there can be good reasons – apart from any protectionist motives – why a WTO Member might want information to be provided as to the origin of products [...]”.\textsuperscript{70} While it found that the measure had “troublesome aspects”\textsuperscript{71} it did accept that it was taken at least partly to prevent deceptive practices.\textsuperscript{72} There cannot be any doubt that Swiss labeling does at least in part aim at informing consumers on the us of gene technology in food production.

\textsuperscript{67} \textit{EC-Sardines, Panel Report}, para. 7.113; there were no quality or health issues involved in the distinction between the different varieties of fish.  
\textsuperscript{68} \textit{EC-Sardines, Appellate Body Report}, para. 289.  
\textsuperscript{69} \textit{EC-Hormones, Appellate Body Report}, para. 245.  
\textsuperscript{70} \textit{Korea-Beef, Panel Report}, para. 655.  
\textsuperscript{71} \textit{Id.} at 658.  
\textsuperscript{72} \textit{Id.;} the main question in this case was whether Korea’s measure was proportional.
Would – contrarily to what is suggested in this paper – a panel or the Appellate Body find that the labeling requirement is an SPS measure it would almost certainly find that it violated the SPS agreement. The problem lies in the fact that the Swiss government emphasizes that market approval and post-market monitoring suffice to ensure that no health risks result from approved GMOs. It has, thus, set its appropriate level of protection at a level that would be below the level that would be guaranteed by mandatory authorization, post marketing monitoring plus labeling. Switzerland itself states that labeling is not necessary to achieve the desired level of protection. As an SPS measure labeling would violate Art. 5.6 SPSA which does not allow SPS measures to be more trade restrictive “than required to achieve their appropriate level of sanitary or phytosanitary protection [...].”

2 TBT Issues

As suggested in this paper, Swiss labeling of GM food would not constitute an SPS Measure. It would fall within the scope of the TBT Agreement that explicitly refers to labeling requirements in its definition of technical regulations in Annex 1 Paragraph 1. There is a scholarly discussion whether the TBT Agreement applies to measures relating to processing and production methods which do not have any detectable effect on the end product, such as that part of the proposed Swiss labeling scheme, which requires labeling of GM-food not containing any modified DNA anymore. This paper will not go into the details of that controversy and is based on the understanding that such measures are not excluded from the scope of the Agreement.

Other than SPS measures, technical regulations must not only be applied to protect human, animal or plant health. They can serve a number of objectives including the ones cited in the non-exclusive list in Art. 2.1 TBTA: national security; protection of human, animal or plant health; protection of the environment; and prevention of deceptive practices. Objectives listed in Art. 2.1 are presumed to be legitimate. The legitimacy of additional objectives has yet to be established as no case related to this question has been brought at the WTO so far.

Since the application of the GATT in 1947 measures pursuing the prevention of deceptive practices have been accepted even if violating one of the GATT provisions (Art. XX(d) GATT). It was only recently that a panel was asked to interpret this exception in Korea-Beef. Korea had established a system in which imported and domestic beef were segregated on the retail level in order to secure compliance with its Unfair Competition Act. The panel had its doubts as to Korea’s motives but did accept that it was pursuing this objective. The standard applied by the panel was that it had to serve this purpose “at least in part”. Technical regulations preventing deceptive practices hence relate to consumer protection in general. It is everybody’s guess whether the extensive Swiss GM-food labeling requirements designed to secure “consumer free choice” are still related to the “prevention of deceptive practices” in...
the WTO’s terms. However, the relatively flexible standard the panel applied in *Korea-Beef* would suggest that the term would cover a broad spectrum of measures related to consumer protection. Indeed, some authors point to this phrase for the justification of mandatory labeling of GMOs.\(^{79}\) Furthermore, as outlined above, the list of legitimate objectives in Art. 2.1 TBTA is non-exhaustive. Additional objectives, e.g. ethical concerns,\(^ {80}\) could be recognized in time.\(^ {81}\) There are good reasons to apply a consumer based standard to the legitimacy requirement as it cannot be up to the WTO bodies to determine acceptable consumer concerns in WTO Members. Non-legitimacy would be restricted to clear violations of enacting a consumer protection measure in good-faith, such as in the case Korea’s measure would not have had any relation to consumer protection.

Similar to GATT Articles I.1 and III.4 the TBT Agreement requires technical regulations to ensure that imported products are “accorded treatment no less favorable than that accorded to like products of national origin and to like products originating in any other country” (Art. 2.1).\(^ {82}\) This provision embraces the core principles of GATT, the most favoured nation principle (MFN) and the principle of national treatment (NT). Of particular interest to the question of WTO conformity of the Swiss labelling scheme is the national treatment principle. Its objective is that imported products are not placed at a disadvantage (“treated unfavourably”) of competing domestically produced products, which would counteract the tariff concessions granted. The main questions to ask are whether two products are competing (“likeness”) and whether the imported product is accorded unfavourable treatment.

The like products question is one of the peculiarities of WTO jurisprudence. The term appears in a multitude of provisions but, according to the Appellate Body, has to be interpreted differently in every case. Furthermore, likeness cannot be determined in the abstract but has to be analyzed differently for each dispute considering all facts of the case. No case law on the likeness question under Art. 2.1 TBT Agreement exists. Yet general conclusions can be drawn from the extensive jurisprudence relating to other Agreements. As an analytical tool the Appellate Body generally uses the criterions established by the GATT working party on border tax adjustments: physical properties, end uses, consumer tastes and habits *vis-à-vis* these products and tariff classification,\(^ {83}\) whereas the physical properties seem to have a bigger influence on the analysis than the other criterions. Furthermore, in EC-Asbestos the Appellate Body acknowledged, that effects on human health can be taken into account for determining the physical likeness of two products.\(^ {84}\) The extent of the competitive relationship between two products plays an important role.\(^ {85}\) The particularity of Art. 2.1 of the TBT Agreement is that once a measure treats an imported product less favorable than a like domestic product no general exception is available to justify the measure as under Art. XX GATT. There is an “automatic” violation of the Agreement. An analogous interpretation


\(^{80}\) See ECNH (2003), p. 6; this paper does not consider the question of ethically motivated domestic measures and WTO rules.

\(^{81}\) In EC-Sardines the Panel and the Appellate Body did not have to rule on whether “consumer protection” and “market transparency” would qualify as legitimate because the parties to the dispute had accepted so; see EC-Sardines, Panel Report, para. 7.122.

\(^{82}\) Furthermore, technical regulations also have to afford MFN treatment to products from other WTO Members. In the context of this paper, this question is not of principle importance though; see the introductory section by RIOS/LUCENTI.


\(^{84}\) See EC-Asbestos, Appellate Body Report, para. 120.

\(^{85}\) In EC-Asbestos, para. 99, the Appellate Body held that under Article III.4 GATT the evaluation of the likeness of two products is “fundamentally, a determination about the nature and extent of a competitive relationship between and among products”.

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of Art. 2.1 TBTA to Art. III.4 GATT would lead to WTO inconsistency of many domestic measures previously justified by an exception of Art. XX GATT as GATT and the TBT Agreement are generally considered to apply cumulatively.\textsuperscript{86} This cannot be the intention of the TBT Agreement which in its recitals recognizes that “no country should be prevented from taking measures necessary […] for the protection of human, animal or plant life or health, of the environment, or for the prevention of deceptive practices […]” and desires “to further the objectives of GATT 1994”. Hence, it would be advisable if the WTO dispute settlement bodies would interpret both requirements in Art. 2.1 (likeness and less favorable treatment) much broader than in Art. III.4 GATT thus allowing WTO Members to actually take the health, environmental and consumer protection measures they deem appropriate.\textsuperscript{87}

Comparing GM and conventional food will not be an easy task. Physically the products in many cases share the same characteristics. Corn starch from GM-corn and corn-starch from non-GM corn share the same physical properties (as well as the products derived from corn starch). A physical difference exists with regard to GMOs and conventional varieties and GM-food products obtained from GMOs still containing modified DNA. But are these differences significant?\textsuperscript{88} The difference between a conventional corn seed and a bt corn seed\textsuperscript{89} is that a gene sequence from a bacteria (\textit{bacillus thuringiensis}) has been implanted into the seed. The corn plant then starts producing an insecticidal protein that is lethal to the European corn borer a pest to which annually 7% of corn yields are lost. No significant effects on consumers are known.\textsuperscript{90} Another standard variation of corn is to make it glyphosate (active ingredient in Monsanto’s herbicide Roundup) tolerant\textsuperscript{91}. The difference to conventional varieties is that a higher quantity of the herbicide can be used without harming the plant. The use of other herbicides can be reduced in turn. Again, no adverse effects on consumers are known.\textsuperscript{92} End-uses in many cases are the same. In fact, most of the GMOs and GMO derived products are designed to replace existing conventional varieties. The strongest argument in favor of distinguishing between conventional and GM-produced food are consumer perceptions. Consumers do make a difference between conventionally produced

\textsuperscript{86} MACMILLAN/BLACKENEY (2001), p. ...

\textsuperscript{87} MARCEAU/TRACHTMANN (2002), pp. 822-23; other authors generally point to the fact that there is a textual similarity between Art. 2.1 TBTA and Art. III.4 GATT and that, hence, the two respective provision should be interpreted alike; see ……. Canada makes the same argument in its first submission in the EC-Biotech case (see EC-Biotech, First Written Submission of Canada, April 21, 2004, para. 336 ,available at http://www.trade-environment.org/output/theme/tewto/Canada_submission_biotech.pdf.)

\textsuperscript{88} Canada argues in its first submission in the EC-Biotech case in the context of Art. III.4 GATT, that between GM and conventionally produced canola/oilseed rape “physical differences are minor, and occur only at the genetic level” and that “[m]inor physical differences only matter if they give rise to real differences in the quality, performance, functionality or risks associated with that product, in so far as those factors “influence the competitive relationship between products in the marketplace” (supra, paras. 306, 308).

\textsuperscript{89} In Switzerland a bt-corn variety is approved for food use (see http://www.bag.admin.ch).

\textsuperscript{90} Source: http://www.checkbiotech.org.

\textsuperscript{91} In Switzerland Roundup Ready varieties of rape, soy and corn have been approved for food use (see http://www.bag.admin.ch).

\textsuperscript{92} See e.g. Opinion of the Scientific Committee on Food on the safety assessment of the genetically modified maize line GA21, with tolerance to the herbicide glyphosate expressed on 27 February 2002, Commission document SCF/CS/NF/DOS/10 ADD1 Final (available at http://europa.eu.int/comm/food/fs/sc/scf/index_en.html)
food and GM-food. Consumers have health concerns but many of the concerns again relate to environmental issues, i.e. the different production process and not to the consumption of the food per se. However, the question has to be asked, why food has to be labeled just because at one of the multiple steps of the production process a GMO were involved. Do consumers distinguish that strictly between food products? Surveys are usually made on the basis of comparisons of general categories of GM-food and conventional food. There is one additional critical question to ask: Why not labeling of food produced with GM-enzymes or produced from animals fed with GM-feed? Again the likeness question would determine the permissibility of the distinction (imported food obtained from GMOs is treated less favorable than domestic food produced with GM-enzymes). Food production involving corn starch provides an example of the industrialization and complicated technical methods of food production today. It is difficult to explain why a product not containing any modified DNA which has been produced from corn starch from GM-corn in a multi-step process (e.g. ascorbic acid) requires labeling while as milk produced from GM-feed does not. The same doubts arise in connection with food production involving GM-enzymes. The existing labeling regime in Art. 22b FO is much more consistent. Also, a labeling regime requiring labeling for all food the production process for which involves a GMO would be more consistent but would run into the problems outlined above.

Products obtained from GMOs but not containing modified DNA anymore raise even another problem of WTO jurisprudence. As explained above, the labeling requirement for these products is entirely based on the different production method, i.e. a GMO did play a role in the production process at one step or the other. The end product is the same as if produced without GMOs. If applied to imported food products a WTO Member is requiring not that the product conform to certain standards but that the producer abroad use a specific production method. Under GATT jurisprudence such measures were always considered not to be falling under Article III.4 but Art. XI GATT that prohibits all non-tariff measures (no like product distinction). Again, the question is whether Art. 2.1 TBT Agreement should be interpreted like Art. III.4 GATT. The TBT Agreement does not know the distinction between tariff and non-tariff measures and explicitly allows for technical regulations laying down processes and production methods (Annex 1, para. 1). Scholars disagree whether such a measure introduces distinctions based on production methods that do not result in any differences in products. However, an argument can be made that Art. 2.1 TBT Agreement must allow product distinctions based entirely on their production methods. Otherwise, measures such as the one imposed by the U.S. in Shrimp Turtle and found consistent by the Appellate Body could not be WTO consistent.

Finally, a non-discriminatory technical regulation pursuing a legitimate objective may not be more trade-restrictive than necessary to fulfill the legitimate objective, taking account of the risk non-fulfillment would create (Art. 2.2 TBTBA). There has not been any case yet in which a panel has interpreted the necessity requirement in Article 2.2 TBT Agreement. However, the GATT contains similar requirements under Article XX to which the Appellate Body applies a

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Even Canada in its First Written Submission of April 21, 2004 in the EC-Biotech case admits that “in principle, «consumers’ tastes and preferences» is relevant as a criterion to determine likeness.” (supra, para. 316).


See below.
two-pronged test when examining necessity.\textsuperscript{96} First, it would examine whether there is no less trade-restrictive measure available that would achieve the same objective and second the Appellate Body applies a sort of a balancing test where the more important the common interest protected, the smaller the impact of the measure on imports and exports and the bigger the contribution made of the compliance measure to the enforcement of the law or regulation at issue, the easier it will be to prove that a measure is necessary.\textsuperscript{97} The TBT Agreement’s language is less general in that it does not speak of necessity as a general requirement but only as a requirement not to promulgate measures, which are more trade-restrictive than necessary. However, it does add the phrase that the risks non-fulfillment would create have to be taken into account. This last phrase suggests that proportionality between the legitimate objective and the trade-restrictiveness should be relevant for the TBT Art. 2.2 standard, similar to the necessity test under GATT Art. XX.\textsuperscript{98} It is impossible to predict, how a panel would come out on this test. There are a number of factors that could be relevant for balancing the different interests: Labeling is generally perceived as one of the least trade-restrictive measures a WTO Member can impose. Only voluntary labeling would be less trade-restrictive than the mandatory labeling regime imposed by Switzerland. However, labeling of products that do not contain any traces of modified DNA as proposed by the Federal Council in its draft amendment of Art. 22b FO requires extensive documentation and imposes significant administrative burdens on producers and importers,\textsuperscript{99} a fact that could tilt the balance against the Swiss regime. Consumer information, on the other hand, is not as important an objective as e.g. consumer health/safety or prevention of consumer deception. Also, in light of the technically very complicated industrial food production today, it is questionable why food has to be labeled just because at one of the multiple steps of the production process a GMO was involved to a limited extent.

\section{GATT issues}

Unlike the SPS Agreement the TBT Agreement does not contain a presumption of consistency with the relevant GATT articles.\textsuperscript{100} A TBT measure has to be evaluated under the obligations contained in GATT as well. The most important provisions are Articles III.4, XI and XX.

Under Article III.4 (national treatment), an imported product “shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use.” The central purpose of Art. III GATT is to avoid protectionism. The decisive factor is whether a measure is applied so as to afford protection to domestic production, which has to be determined objectively based upon the underlying criteria used in a tax measure, its structure, and its overall application.\textsuperscript{101} For a violation of Art. III.4 three elements must be given: 1) there must be a domestic measure which is “a law, regulation, or requirement affecting [the] internal sale, offering for sale, purchase, transportation, distribution, or use” of domestic and imported products; 2) the domestic and

\begin{footnotesize}
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\item \textsuperscript{96} The burden of proof for a violation of Art. XX lies with the defendant while the burden of proof for compliance with Art. 2.2 TBTA lies with the complainant; see \textsc{Howse/Mavroidis} (2000), p. 324.
\item \textsuperscript{97} \textit{Korea-Beef, Appellate Body Report}, para. 164; see \textsc{Marceau/Trachtmann} (2002), 826.
\item \textsuperscript{98} See \textsc{Marceau/Trachtmann} (2002), p. 831-832; for a similar opinion see \textsc{Desmeth} (2001), pp. 459-60.
\item \textsuperscript{99} See above n. ...
\item \textsuperscript{100} See the introductory chapter by \textsc{Rios/Lucenti}.
\item \textsuperscript{101} \textit{Japan-Alcoholic Beverages, Appellate Body Report}, p. 28-29; see also \textsc{Marceau/Trachtmann} (2002), p. 817-818 (providing an analysis of existing case law).
\end{itemize}
\end{footnotesize}
imported products must be like; and 3) the imported products are afforded less favorable treatment than the domestic products.\textsuperscript{102}

The most contentious of the three elements with regard to GM and conventional food will be their likeness.\textsuperscript{103} As outlined above under Art. 2.1 TBTA, likeness has to be interpreted differently for each provision and in each case. Furthermore, the likeness question does not only relate to less-favorable treatment of foreign and domestic GM-food but also to foreign GM-food and domestic conventional food products.\textsuperscript{104} Finally, the determination of likeness is mainly about determining the degree of the competitive relationship between two products. As suggested in this paper likeness under Art. III.4 GATT should be construed narrower than under Art. 2.1 TBT Agreement. A likeness determination under Art. III.4 GATT could well lead to a different result than under Art. 2.1 TBTA. Considering that some of the imported food products considered by Switzerland to be GM-food have to be labeled just because they at one of the multiple steps of food production involved a GMO it appears likely that a panel would find that not all GM-food products as defined by Swiss Law are unlike their conventional counterparts. The fact that labeling is required regardless of whether products such as corn starch, glucose syrup or soy lecithin are identical regardless whether produced from GMOs or not makes this result even more likely. When comparing GM-food obtained from GMOs but not containing any DNA with food products produced with the help of GM product such as enzymes or GM-feed, it seems inevitable that Swiss GM-food law introduces distinctions between like products. Finally, the fact that Switzerland requires labeling of products obtained from GMOs which are identical to products obtained from non-GMOs under traditional GATT-jurisprudence would lead to Art. III.4 GATT not being applicable but Art. XI GATT. Many scholars agree, that even under the WTO no such distinctions should be allowed.\textsuperscript{105} Unlike Art. III.4 GATT Art. XI GATT does not provide for a non-discrimination standard but an outright prohibition of measures within its scope.

Under Art. III.4 discrimination can only be found, if imported products are treated less-favorably than domestic like products. There is not much case law on the “less favorable treatment” element of Art. III.4 GATT. Depending on the content the dispute settlement bodies of the WTO will assign to this element in the future, the criterion could become more or less contentious.\textsuperscript{106} Labeling as such is a little-intrusive measure. Yet, it does impact trade in that products have to be packaged differently resulting in a loss of economies of scale. On the other hand, food laws of WTO Members require different labeling for each market anyhow. However, other then, for instance, labeling of geographic origin, labeling of GM-food is only possible if producers install administrative precautions. The best example is the traceability requirement, which will be mandated by the new Art. 22b FO. GM-food labeling, thus, has a clear impact on production and production costs and, consequently, on competition and trade.

\textsuperscript{102} 

\textsuperscript{103} There is not much case law on the “less favorable treatment” element. Depending on the content the Appellate Body will assign to this element in the future, the criterion could become more or less contentious (see \textit{MARCEAU/TRACHTMANN} (2002), p. 820-21). However, an authorization requirement, including a burdensome procedure for the authorization as is the case for the importation of GM food into Switzerland, for the imported product but not for the domestic product should not be difficult to prove “less favorable”.

\textsuperscript{104} See above p. …

\textsuperscript{105} See e.g. \textit{MARCEAU/TRACHTMAN} (2002), S. 857-8 (pointing to circumstantial evidence in case law).

It is difficult to predict how a panel or the Appellate Body would construe the “less favorable treatment” requirement. It cannot be excluded, that Swiss GM-food labeling constitutes a violation of Art. III.4. Furthermore, some of its aspects, as stated above, fall under Art. XI stipulating an unconditional prohibition. Therefore, Switzerland would have to claim a general exception of Art. XX GATT to justify its measure. None of the exceptions listed in Art. XX GATT explicitly allow for consumer information measures. Measures “necessary to secure compliance with laws or regulations which are not inconsistent with this agreement, including those relating to […] the prevention of deceptive practices” (letter d) come closest to encompass consumer free choice. As shown above, the panel in Korea-Beef applied a flexible standard to this exception. Further evidence that “prevention of deceptive practices” encompasses a broad range of consumer protection measures can be found in preparatory work. At the London session of the Preparatory Committee it was agreed that it would “cover cases of false marking of geographical origin”. Marking of geographical origin is a measure, which does not serve any product security or ethical purpose but is a pure consumer demand just as Switzerland claims of its GM-food labeling. Furthermore, as argued above when considering Art. 2.2 TBTA a consumer-based approach should be used. Swiss GM-food labeling would prima facie fall under the exception in Art. XX(d) GATT. The same provision also requires that national measures to prevent deceptive practices be necessary. As outlined above, proportionality of Swiss GM-food labeling runs into problems.

Finally a measure provisionally justified by one of the exception in Art. XX GATT must not be applied “in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade” (Art. XX “Chapeau” GATT). According to the Appellate Body, the objective of the chapeau of Art. XX is to prevent the abuse of the individual exceptions. The exceptions “must be applied reasonably, with due regard both to the legal duties of the party claiming the exception and the legal rights of the other parties concerned.” Three elements must exist in order to find a measure inconsistent with the chapeau of Art. XX: First the measure must result in discrimination (unequal treatment), second the discrimination must be arbitrary or unjustifiable in character and third the condition must occur between countries where the same conditions prevail. The discrimination standard in the chapeau of Art. XX cannot be construed identically to the one in Art. III.4. Otherwise, any measure inconsistent with Art. III.4 would automatically be inconsistent with Art. XX. Neither a panel nor the Appellate Body so far has construed the discrimination requirement however. Scholars advocate that Art. XX chapeau should require discriminatory intent, a requirement.

In Korea-Beef Korea had enacted a dual retail system for domestic and foreign beef to prevent that consumers were deceived regarding the quality of beef that was generally considered higher for grass-fed Korean Beef. The measure, according to Korea, was designed to prevent misrepresentations of foreign beef for domestic beef; see Korea-Beef, Panel Report, paras. 655-658; generally the Panel stated the following: “The Panel recognizes that there can be good reasons – apart from any protectionist motives – why a WTO Member might want information to be provided as to the origin of products, and particularly meat products, at the retail level.” (id. para. 655); the decision was appealed but the Appellate Body did not have to rule on what “deceptive practices” are. Furthermore, neither the Panel nor the Appellate Body went into the question whether the measure was based on genuine consumer interests (“despite […] troublesome aspects” as the Panel held, id. para.657).


See above, p. …

US – Shrimp, Appellate Body Report, para. …

Id., para. 150.

Switzerland’s labeling regime would probably conform to. The question, whether the discrimination is arbitrary or unjustifiable would be solved by looking at the specific circumstances of the case. The genuine consumer interests in Switzerland would certainly be an important argument in favor of the labeling requirement that could be advanced to fend off arguments which would claim Switzerland’s only goal is the protection of its own GMO free food production sector.

The fact that Swiss GM-food labeling at least partly constitutes a measure not relating to food products as such but to their production method is important for the chapeau of Art. XX as well. By imposing such standards Switzerland is regulating production methods abroad. In GATT practice Art. XX has been interpreted as not allowing for such measures because of extra-jurisdictional effects. In Shrimp Turtle, the Appellate Body explicitly did not rule on whether Art. XX still contains such a prohibition. However, in an obiter dictum it held that extraterritoriality may “be a common aspect of measures falling within the scope of one or another of the exceptions (a) to (j) of Article XX” and that it was “not necessary to assume that requiring from exporting countries compliance with, or adoption of, certain policies […] prescribed by the importing country, renders a measure a priori incapable of justification under Article XX.” The Appellate Body did elaborate on procedural requirements when imposing such extraterritorial measures however. Among other obligations it held that WTO Members first have to consult with other WTO Members affected by the measure and are under an obligations to negotiate (not to conclude) an agreement on the matter. Only upon failure of such consultations/negotiations a unilateral measure can be imposed. Switzerland did not take any of these procedural steps required by the chapeau. It can thus be expected, that a panel would find Switzerland was not in a position to claim any of the exceptions in Art. XX GATT in so far as its measures requires labeling of GM-food not containing any DNA anymore.

**Conclusion**

The proposed labeling scheme provides for a number of problems when considered under the relevant WTO obligations. Food production is part of a technically highly complicated industry in which biotechnology (transgenic or not) already plays an important role. Any distinctions introduced on a process base runs the danger of becoming arbitrary if not carefully designed. There are no rational explanations for the inclusion of GM-food products obtained from GMOs but not containing any DNA nor the exclusions from the labeling requirement of food products produced with GM-enzymes or produced from animals produced with GM-feed.

Furthermore, the Swiss labeling requirements introduce distinctions between different GM-food product groups that are unreasonable and not based on the products as such but on their respective production processes. With this requirement Switzerland mandates foreign producers to use a certain category of production processes in order to avoid being obliged to label their products as “produced from GMOs” and having to conform to extensive documentation requirements. This is against the idea of the GATT, which focuses on trade liberalization and not industrial regulation. There is a careful balance to be drawn between legitimate international interests that allow for using trade tools to impose requirements on the


114 US – Shrimp, Appellate Body Report, para. 133; it did not have too as it did find a connection of the protected resources (turtles) to the territorial waters of the U.S., as these species migrate through these waters.

115 *Id.* at para. 121.
industries of other WTO Members and national autonomy. Switzerland’s labeling regime fails
to do so.
Bibliography

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