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## “Food Safety”

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### Introduction

#### Initial Situation

Until a few decades ago, offering enough food at affordable prices (Food Security) was the top priority of food production in Europe. Through the invention and implementation of new techniques and equipment in the course of the twentieth century, the productivity of agriculture and the food industry has risen, in parallel with a simultaneous reduction in production costs. This development has guaranteed a certain level of supply security; however, it bears a direct relation to new dangers and health risks such as BSE, hormones, antibiotics or dioxins (see annex). At the same time, analysis techniques have become so sensitive that traces which have never before been identified have now been detected in foods, e.g. acrylamide (ANDREWS, 2001, p. 34). Moreover, modern biotechnological possibilities (e.g. the production of transgenic plants and animals) have set new challenges for the human race today. Reports and headlines relating to production errors, and new research insights, with their (possible) consequences, have disconcerted consumers, so that the issue of Food Safety has moved firmly into the public eye.

Reports on food scandals trigger emotional reactions from consumers, as eating is a physiological necessity and any danger in connection with food is considered an attack on the individual's own survival. Furthermore, today's lifestyles (single households, single parents, working women, multi-optional consumers) are characterized by changed food habits, which imply less knowledge about food production and preparation (Complex Food Chain). Ignorance again is fruitful soil for negative reports. “Modern communication facilitates the quick and extensive transmission of news. When it comes to investigating food scandals, the media plays a crucial role. Nevertheless, the obligation to report findings more often than not ends in sensational reports that spread fear. Reality is misconstrued and the impact amplified through the simplification, omission or curtailing of information. But not only sensational journalism disconcerts consumers, controversial risk calculations also contribute significantly to public unease.” (KRÄMER, 2004).

Nowadays, the quality and safety of produce are measured by external components (e.g. more extensive production procedures, animal-friendly livestock farming, environmentally friendly agriculture), since chemicals, mass livestock farming and foreign produce are associated with poor quality and food risks. Measures such as improving the traceability of goods traffic, regulating and monitoring of the use of additives, as well as the spread of forms of livestock farming which can be justified in epidemiological and ethical terms, have all had the aim of providing a legal basis on which to meet consumer demands for integral food quality control. In the private sector, participants concerned try to guarantee safety by means of labels, in order to build up consumer confidence in foods again.

**Approach: Questions to be Addressed**

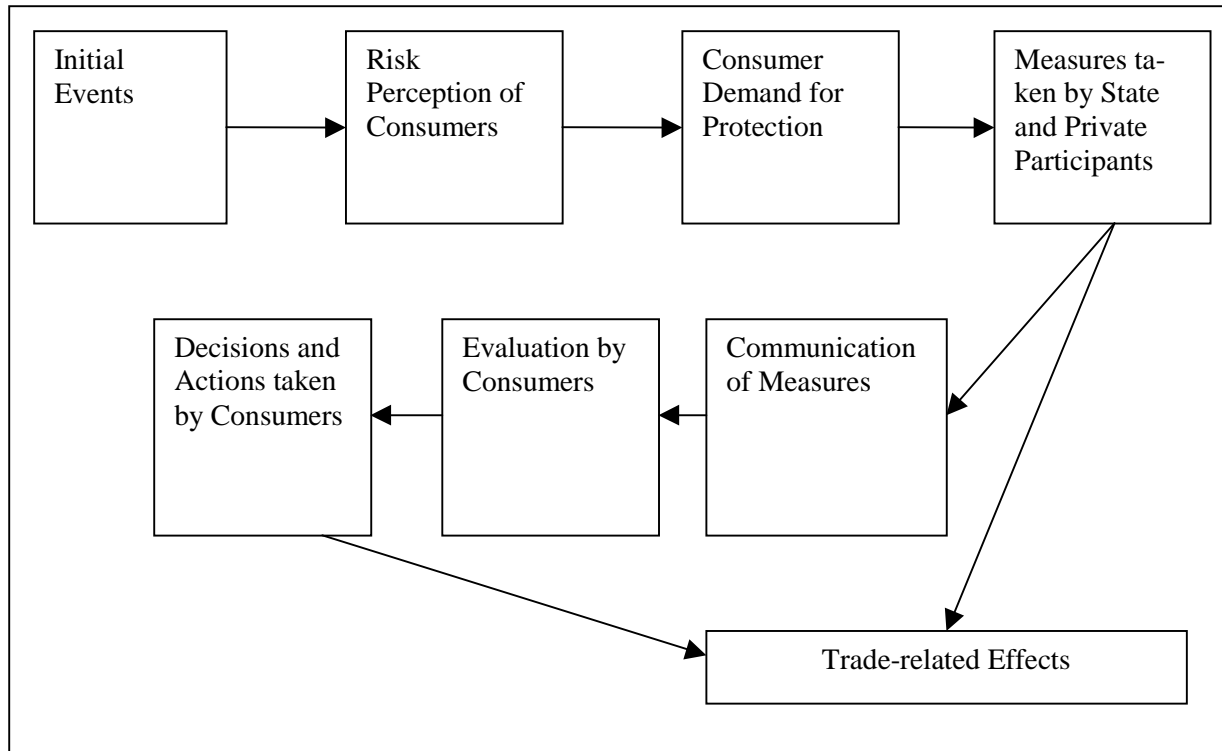
**Question 1:** Consumer confidence in food quality and safety has declined due to scandals in the past years. Can this confidence be rebuilt by means of regulative measures on the part of the authorities?

**Question 2:** What (marketing) instruments are available to private parties in a problem situation? How can they tackle crisis management (momentary, short-term reactions) and what modifications in product and communication strategies (medium and long-term adaptations) are most promising?

**Question 3:** Can the gap between the objective danger and the subjective risk perception of the consumer be reduced by means of credible action by the parties concerned, improved information and communication?

**Trade-related effects:** What consequences will the developments in the area of food safety in the European industrialized countries have for agrarian exporters and developing countries?

Figure 1: Consumer Demand for Food Safety and its Effects



## **Theory**

### **Definition of Terms**

#### **FOOD RISKS**

In earlier times, trading laws were introduced to counter common fraud practices (e.g. diluting wine). Later, efforts were concentrated on minimizing micro-bacterial risks. The events and insights of the last few years have shown that other factors are of much greater significance. According to AMADO (TLF, 2002) and ANDREWS et AL. (2001, p. 25), the end user is confronted with the following food risks:

- Dangers of incorrect nutrition: too much fat, salt, sugar, tobacco, alcohol, too few minerals, trace elements, vitamins; too little sport
- Dangers associated with micro-organisms present in food: bacteria, viruses, protozoa, fungi
- Dangers from environmental contamination: pesticides, antibiotics, hormones, dioxins, radionucliotids, but also foreign bodies or BSE
- Dangers from toxic components in foods: natural substances in foods (oxalates in spinach, solanines in potatoes, mykotozines in wheat grains, etc.) or substances created in the course of production (nitrosamines, acrylamids)
- Dangers from additives: though these are officially accredited as GRAS (Generally Recognized as Safe), they can cause problems for people with allergies if they are not declared

Studies by dieticians and health experts of the World Health Organization (WHO) and the European Union (EU) confirm that, in connection with the consumption of food, poor eating habits and micro-biological contamination represent the largest risks for human health. The cause for most cases of damage by micro-organisms lies in the way products are handled by the consumer after purchase (cross contamination, inappropriate storage).

#### **FOOD QUALITY**

“Quality is defined by the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implicit needs.” This is the general international definition of quality. In respect to food, the distinction is made between quality of production and product. The quality of the product is determined by toxicological risks, nutrition and health values, appearance, taste and texture as well as psycho-biological and sensory characteristics. The quality of production, however, relates to the processes by which the foodstuff is obtained or made. It does not have any direct influence on the physical quality of food, but is clearly related to its ethical quality and covers external components such as energy consumption, employment of production aids, waste management, production size or degree of automation and rationalization (ESCHER, TLF, 2002). Good quality implies safety.

#### **FOOD SAFETY**

Besides the prevention of health risks which may arise from consumption, food safety also covers the precautionary principle, the protection of the consumer from deception, and the guarantee of freedom of choice when purchasing products. Food safety is a component of quality. It involves, on the one hand, measures aimed at ensuring that product and production quality meet the consumer’s expectations. On the other hand, it must provide access to the necessary product information, so that buyers can be convinced of the product’s safety and good quality.

Measures are taken at the level of the formal product itself; the communication of these measures takes place at the level of the extended product. “The formal product is the physical unit, recognized as the product being sold, and all the characteristics associated with it. The extended product covers the totality of the advantages which the buyer acquires or perceives along with the formal product.” (SEILER 2002, p.201) Services such as information, advice and guarantees (e.g. controlled labels) convey these advantages to the customer.

Figure 2: Definition of Food Safety

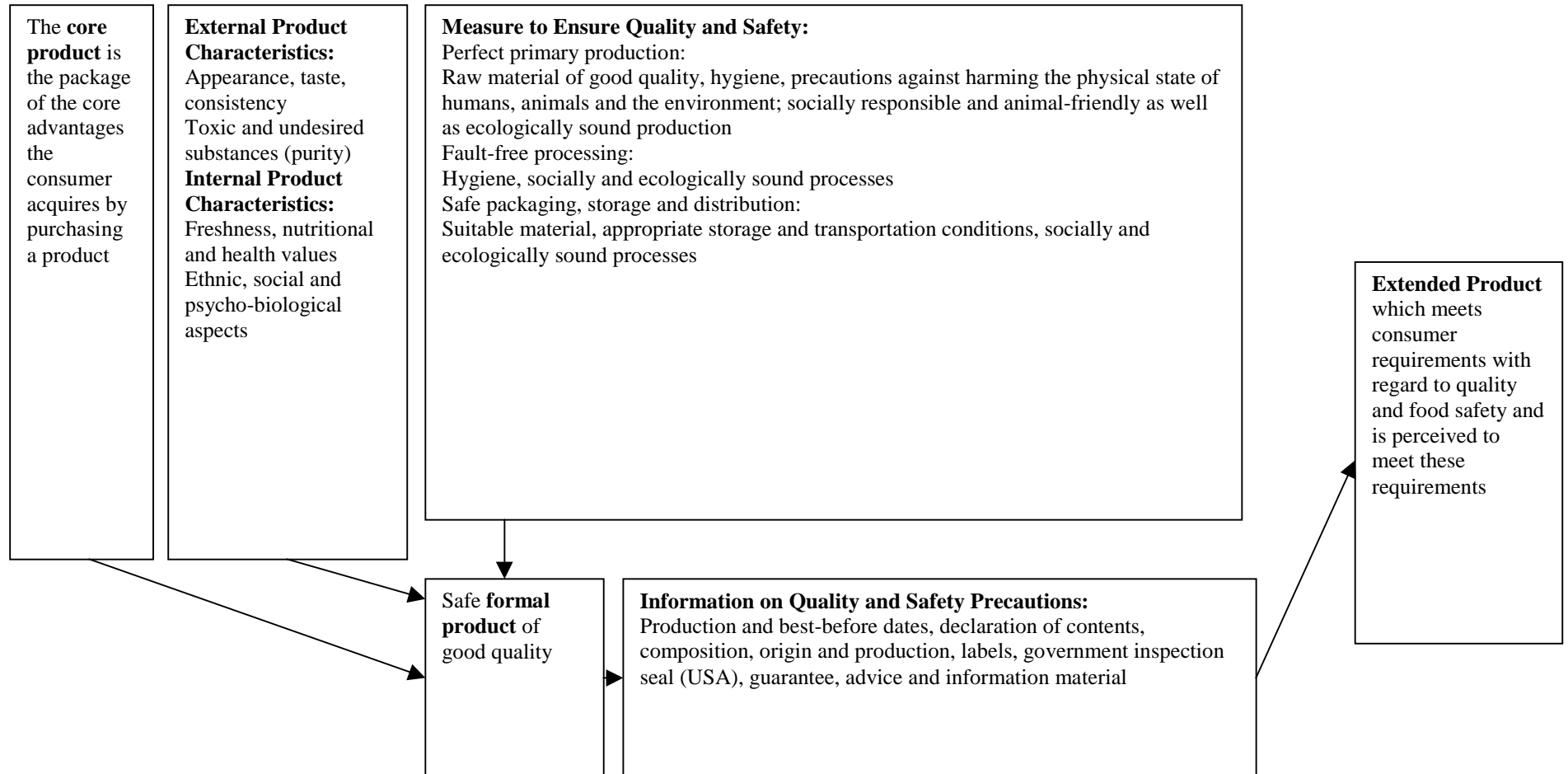
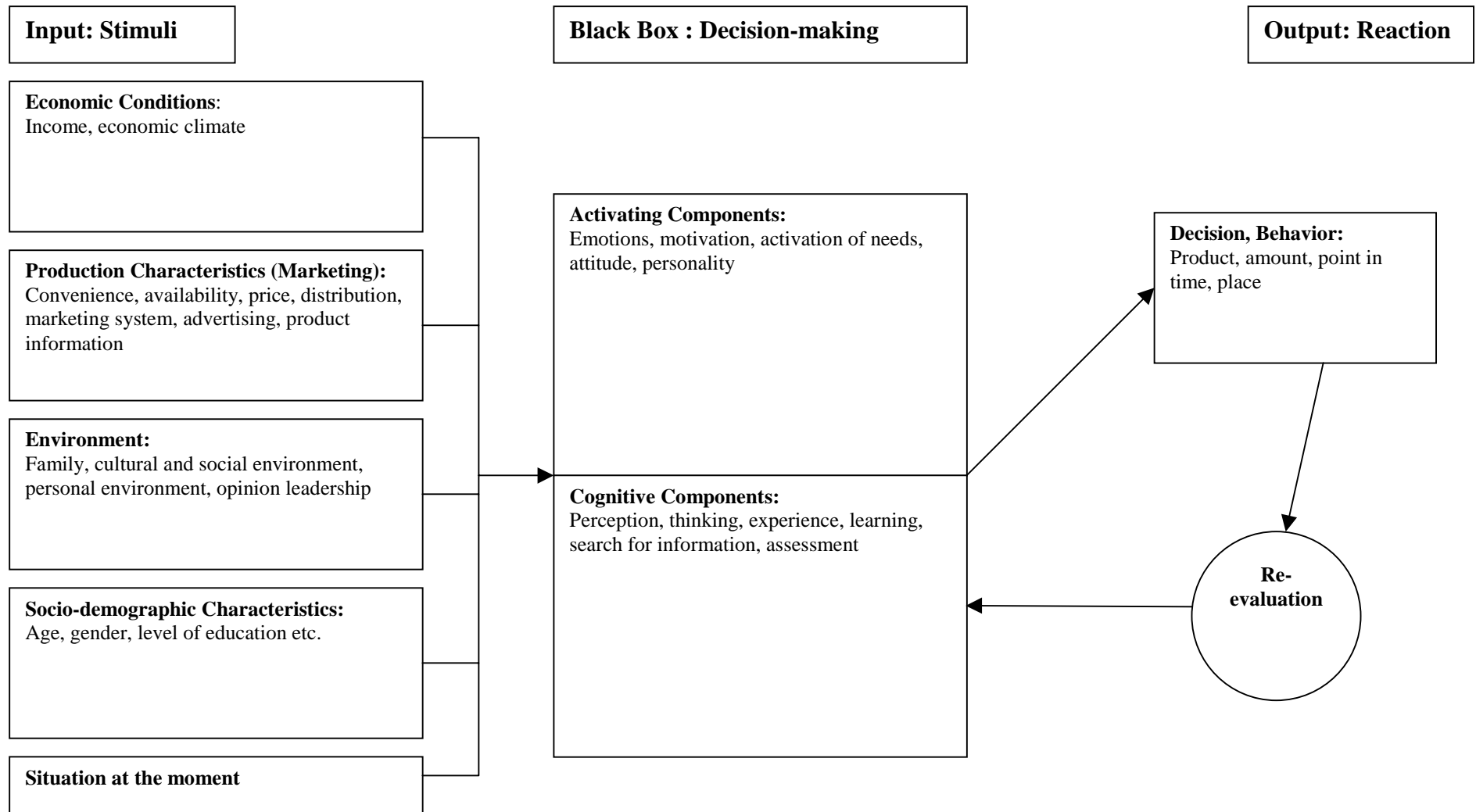




Figure 3: Process of the decision to buy, and factors influencing it



Source: SEILER (2002, p. 505) and BADERTSCHER (1997, p. 12)

## **INFORMATION SEARCH**

Information plays an important role in the decision-making process. It is the basis for evaluating a product and its characteristics. The search for information is guided by the activating components of the decision-making process, in particular by the attitude and personality of the consumer. The psychological theory of cognitive dissonance, which explains the subjective choice of particular sources of information and the processing of the information in terms of these elements, explains:

“The dissonance theory claims that people are generally motivated to actively seek information which is congruent or consonant (with their attitude), and to actively avoid information which is contrary or dissonant (with their attitude), in order to stabilize a decision already made or strengthen an existing attitude, in this way achieving cognitive consonance. If attitudes have already been weakened, however, dissonant information is sought in order to return to a stable situation.” (BADERTSCHER, 1997, p. 21)

This striving for internal harmony is also the reason why consumers revert to old behavioral patterns within a relatively short period of time after food scandals (e.g. beef consumption after the BSE crisis). In the immediate aftermath of the initial shock, there is a phase of strong cognitive dissonance, initiating denial, which leads to the restoration of the previous stable situation. Therefore, re-education campaigns over many years are necessary in order to guide the behavior of the consumer in a certain direction on a long-term basis (MELCHERS, p. 4).

## **EXPECTATIONS OF FOOD SAFETY**

Consumers strongly desire absolute food safety, which implies, among other things, a zero-tolerance policy when it comes to traces of foreign matter or harmful organisms. However, both the term “zero tolerance”, intended to mean the exclusion of all risks, and its application are disputed. The rapid development of inspection techniques is facilitating the identification of ever-slighter traces of undesirable materials. Zero tolerance, therefore, is merely a matter of the limitations of the analysis method used (DUPERRUT et AL., 2003, p. 13).

The success of measures taken and communicated essentially depends on their conformity with the subjective criteria of the consumers. Efforts which do not accord with the consumer’s mindset remain ineffective. When purchasing food, people grant the highest priority to sensory evidence – this, among other things, out of pride in their own ability to avoid false purchases and uses money productively (MELCHERS, p. 2). If a product cannot be assessed using the five senses (as in the case of frozen foods, for example), or there is a possible residual risk, consumers rely on further criteria (MELCHERS, p. 5-6):

- Confidence in market regulation: consumers assume that manufacturers and retailers have a personal interest in providing good and healthy products.
- Personal familiarity with the outlet and with employees: the consumer expects that if he/she is a familiar and frequent customer, he/she will not be offered unsatisfactory commodities.
- Brand images: brands stand for quality and unquestionable reliability. Brands with a high reputation even make sensory examination superfluous.
- Appealing packaging and attractive displays: packaging which is transparent enough to permit optical inspection, as well as lovingly prepared displays, convey the message that the manufacturer or retailer is serious.
- Outlets: organic stores, farm-shops and weekly markets appear particularly safe to the distrustful mind because of special ethical obligations and the immediacy of the marketing.

From a psychological perspective, information on food safety serves consumers in confirming the correctness of their subjective criteria, which they have applied autonomously. The reliability of their own procedures conveys the feeling of safety. Consumers consider it an aggressive act against their autonomy, safety and abilities if their individual quality

assessments are questioned. This should be taken into account when it comes to communicating warranties (labels). The labels should be offered as a service to supplement the consumers' own evaluating abilities by providing additional information; it remains up to the consumers themselves to evaluate the information provided.

### **RISK PERCEPTION**

“Investigations have shown that the general public tends to estimate the relative risks in the area of food safety wrongly, and that traces of pesticides, for example, are considered a higher threat than disease-causing microorganisms or an unbalanced diet. The reason for this is that human beings are inclined to consider dangers caused by the acts of others as more threatening than those to which they expose themselves voluntarily. They also tend to react more sensitively to technological than to natural risks and to estimate the dangers of rarer but more dramatic events more highly than everyday risks. Moreover, false perceptions are rife. This can be traced back to an insufficient understanding of the extents of risk, and an insufficient ability to evaluate information concerning risks.” (COHL, 1997, p.3)

Potential risks and actual effects on health are not always clearly distinguished in the media. The average consumer therefore finds it difficult to obtain a realistic picture of the actual degree of endangerment. The now customary dramatic representation of problems by the media, on the one hand, and the purely theoretical information from official, government sources, on the other, are both lacking in practical, everyday relevance: neither approach gives concrete indications about whether and how the individual consumer should change his/her behavior (MELCHERS, p. 7). “One of the essential outputs of any risk analysis must be risk communication in a language that consumers and the media can understand, interpret and act upon. The language must quantify the risk in an unambiguous way so that the consumers may exercise informed choice. This is a much needed area of research: the vision of a simple, universally understood, universally applied, symbol-based risk communication scale from “no known risk” to “do not consume” is very appealing.” (ANDREWS, 2001, p. 40)

### **Risk Analysis as an Instrument for Parties Involved in the Food Chain**

According to ANDREWS (2001, p. 27), risk analysis must involve the quantification, management and communication of risk. In connection with the questions at hand, the areas of risk assessment and risk communication will be examined more closely.

### **RISK ASSESSMENT**

Thirty years after its invention, the concept of Hazard Analysis and Critical Control Points (HACCP) is the globally recognized method for assessing food safety. In 1993, the guidelines for the use of the HACCP system were accepted by the Codex Alimentarius Commission of the FAO/WHO and adopted in legislation governing hygiene within the food sector. HACCP is a rational, systematic approach to the identification, assessment and control of dangers at various levels of the process. In the food sector, the procedure comprises the following stages (AMADO, TLF, 2002):

- Analysis (biological, chemical and physical) of the dangers of the production process
- Identification of the critical points en route “from farm to fork”
- Establishing preventive measures with critical limitations at each inspection point
- Establishing procedures to monitor critical inspection points
- Establishing corrective measures to be taken if critical limitations for each inspection point are not respected
- Establishing procedures to verify that the systems are functioning correctly
- Documentation of all these stages

Besides HACCP to minimize the risks, the foods industry also maintains quality management systems such as Good Manufacturing Practices (GMP) and Quality Assurance Standards (ISO 9000 and ISO 2900).

## **RISK COMMUNICATION**

When it comes to risk communication, one must distinguish between two levels of communication: technical discussions between consultants and risk managers, on the one hand, and informing the public about a danger and the associated measures, on the other. In both cases, the following points should be considered (LOEFSTEDT, 2003, p. 3-4):

- Know your target
  - Craft an appropriate message
  - Do not amplify risks or events
  - Do not involve too many scientific bodies
  - Pro-active communication is best
  - Disclosure of all the detail not always helpful
  - Avoid mentioning brands
  - Make friends with the media
  - Understand the importance of a trusted source
  - Experience is vital when dealing with the media
- Avoid an creating a communication vacuum

## **Economic Principles**

### **FOOD SAFETY IN A MACRO-ECONOMIC CONTEXT**

For companies in the free market, there are incentives in offering a certain degree of food safety because the reputation of producing safe food can be regarded as an important competitive advantage. It is in the interest of the company to protect this advantage. Negative publicity concerning product safety can have a long-term effect in the form of increased costs and/or reduced sales (MITCHELL, p. 12). Nevertheless, the market does not guarantee the level of food safety society would ideally desire. This is partly because consumers cannot judge if a product is definitely safe when they purchase it. If they become ill, they can rarely state with certainty which product exactly is to blame. In addition, they do not know which companies invest largely into food safety and which do not. This reduces the companies' motivation to offer safe products, and the consumers do not demand the levels of food safety that they would if they had complete information (MITCHELL, p. 10). On the other hand, incidents of food-related illness give rise to social and economical costs such as lost work-days, medical expenses etc. The state, as the overriding authority, should therefore supply those involved with an incentive for considering these negative external effects in their decision-making process and thus to internalize them (BADERTSCHER, 1997, p. 61). Where food safety is concerned, asymmetrical information and negative external effects mean that the market fails consumers. "Government regulation is an attempt to increase the amount of food safety provided by the market, as the market alone will usually not provide the socially desirable level of food safety." (MITCHELL, p. 10)

### **WILLINGNESS TO PAY FOR FOOD SAFETY**

According to UNNEVEHR in MITCHELL (p. 16), consumers are willing to pay higher prices for safe products if national measures are taken for the improvement of food safety. This is expressed clearly in a shift of the demand curve to the right. At the same time, the supply curve shifts to the left, due to higher production costs. "The net effect would be a decrease in sales with a higher price, although this higher price better represents the true cost of supplying the food product with the higher level of food safety." (MITCHELL, p. 16)

The consumer's willingness to pay also depends on the expectation value of a product which again depends on transparency on the market. On the used car market, for instance, there are good deals (plums, supply price 2000.-, demand price 2400.-) and bad deals (melons, supply price 1000.-, demand price 1200.-). If it is impossible to differentiate between plums and melons, the customer's willingness to pay only reaches the mean value (= expectation value),

i.e.  $0.5 \cdot 2400 + 0.5 \cdot 1200 = 1800$ . However, no car dealer will be prepared to sell a good car at these prices, so that soon only melons will be on offer (JÖRIN, 2003).

### **Empirical Method (Opinion and Trend Research)**

#### **Attitude of the Swiss Population towards its Agriculture and Products**

An investigation (TUTKUN, 2004, p.7-8) for the research program UNIVOX of the GfS research institute showed that over the past ten years the Swiss population has developed the following preferences concerning the meaning of the multi-functional tasks of agriculture:

- **Environmentally friendly cultivation:** In 2004, 62% of those questioned considered ecological agricultural production “very important”; for further 35% it was “important”. After a slight decrease in the late nineties, this year the categories “very important” and “important” reached their peak since 1994, with a combined percentage of 97%.
- **Animal-friendly livestock farming:** Here too there was a slight increase (from 62% to 67%) in the category “very important”; together with the category “important”, the combined value adds up to 96% of the population. It is clear that this aspect of agriculture is of great concern to the public. The values for 2004 correspond to those for the period 1996 to 1998 (BSE crisis). It is therefore safe to assume that in the last four years, the consumers have again become more sensitive where animal welfare is concerned.

The functions “food production”, “secured nutrition in crisis periods” and “landscape conservation” have similarly increased in significance. The concepts of “decentralized settlement” and the “maintenance of the rural way of life” were considered less important in this year’s survey.

Opinions on agricultural products in the same study (TUTKUN, 2004, p. 17-19) showed up the following trends:

- **Quality of Swiss agricultural products:** In 2004, 62% of consumers considered the quality of Swiss agricultural products to be better than foreign products. This is a significant improvement on previous years, where only about half of those asked attested their confidence in Swiss products.
- **Quality of organic products:** Regarding the quality of domestic products, 59% of those interviewed in 2004 had confidence in food from organic production. This value corresponds to that of 1992, 1995 and 1997 (BSE crisis); in the other years only 50% of the consumers shared this opinion.
- **Price sensitivity:** In the last few years, one can discern a clear tendency to view the price as the most important criterion in the decision to purchase. In 2004, 57% of those interviewed stated that they paid attention primarily to the price when purchasing foods. This is the highest percentage since the beginning of these calculations in 1986 and is due above all to the weak economic situation of the past few years.
- **Place of origin:** 59% of all consumers noted the product declaration when buying food. 63% took regional origin into account. This question was posed this year for the first time. This means that it is not possible to comment on the development of the significance of the declaration of origin in connection with food purchases.

These insights are very much in line with the results of a representative survey by the IHA GRP (2003) on the shopping behavior of Swiss consumers, according to which 70% of those questioned “always” or “mostly” take the production country into account when buying food. The origin is viewed as most important for meat (71%), while less attention is paid when it comes to vegetables (47%), fruit (40%) and eggs (15%).

According to DEMOSCOPE (2001, p. 8), for the majority of the people interviewed it is more important that meat originates from Switzerland than from their own local region. Women, elderly people and representatives of low-income groups particularly pay attention to Switzerland as the country of origin. More than half of those asked considered meat quality in sensory terms such as “good meat” or “fresh meat”, while a quarter associated the term with free-range or animal-friendly farming.

### **Willingness to Pay for Food Safety**

Additional expenditure for animal-friendly farming of agricultural livestock can only partially be paid off through higher product prices, as animal welfare is largely considered a public issue. Its external value, of benefit to all, exists independently of the consumption of animal food. The resulting market failure is compensated by direct subsidies to farmers. This measure can be viewed as economically efficient if it leads to the greatest possible welfare gain for society as a whole, i.e. if the amount of direct subsidy is in line with its perceived external value. In order to measure this, the ‘Tierwohl’ study investigated the willingness of citizens to pay for animal welfare through higher taxes (LANGAUER, 2001). This approach was necessary because, due to free riders (who do not buy label products but are pleased about the additional animal welfare) and vegetarians (who cannot communicate their preferences regarding animal welfare through the market), the label market in itself does not provide sufficient insights into people’s willingness to pay for animal welfare. As animal welfare is a component of food quality (see figure 2), this study is a good basis for forming a picture of people’s willingness to pay for food safety. The people surveyed were presented with two options:

Variant 1: All livestock in Switzerland would enjoy the benefits of the RAUS-program (regular outdoor free-range periods) instead of the legally prescribed minimal movement set out in the current animal protection regulations (TschV).

Variant 2: All livestock in Switzerland would enjoy the additional benefits of a stricter, more far-reaching OPTIMA-program, which would grant the animals access to free-range pasturage to the maximum possible extent (such a program does not exist at present).

The study concluded that the Swiss population would welcome an improvement of the animal welfare of all livestock by increasing access to free-range pasturage: approximately 80% of those asked would be prepared to pay higher taxes for greater open-land tenure. Calculated in terms of the voting population, this would mean a willingness to pay CHF 470 million per year for variant 1 (by way of comparison: currently about CHF 80 million per year is paid for the RAUS program) and CHF 260 million per year for variant 2. The idea of improvements in animal welfare would find still more support if they were also to be financed in part by the re-allocation of existing federal agricultural funds. People’s willingness to pay for animal welfare is also demonstrated by the purchase of food from animal-friendly livestock farming, i.e., through a higher product price. Three quarters of all those included in the survey indicated that they buy food from animal-friendly production. Apart from ethical issues, better quality and health aspects play an important role (LANGNAUER, 2001).

### **General Findings**

In a French study dating from 1998, the willingness to pay for safe beef was examined. Those questioned indicated that they would pay 14-22 % of price of the meat extra for safety but only under the condition that it is clearly recognizable by a label (LATOUCHE et AL., 1999, p. 350-354). This is a further example of the fact that people’s willingness to pay for additional standards (safety, animal-friendly farming, ecologically sound production) is dependent on the amount of information available. Furthermore, the relative value of goods manufactured under stricter production conditions is of great importance. “The higher price is always viewed in comparison with similar products and therefore cannot be too high. There

are only a few ranges (fruit, vegetables, meat) where the consumers are willing to pay in excess of 20% more for organic products. If conventional products are of good quality and meet the national standards concerning ecology, food safety and animal rights, then the willingness to pay more for organic products falls proportionately, because the increase in value becomes smaller, even if the absolute value is larger.” (MORE ANWANDER, TLF, 2002) “If consumers buy a label product, then they buy not only the product, but also the associated ecological and animal conservation improvements” (not only the formal, but also the extended product). However, from a consumer’s view, a label cannot replace the declaration of origin. Consumers want to know which farmer produced his steak; the label is only additional information to supplement the declaration. A further important point is the availability of information about the label itself, as well as the distinctions between the individual labels (LEHMANN et ALBISSER, 1999, p. 3). The most important reasons for the purchase of labeled meat are, according to LEHMANN et AL. (2004, p. 40), better quality, animal-friendly farming, increased ecological value and a clear declaration of origin. Reasons against it are the higher price and a lack of confidence in labels.

### **Food Safety at the Legal Level\***

#### **International Level**

At an international level, the issue of food safety is dealt with by the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the World Organization for Animal Health (OIE) and the World Trade Organization (WTO). In the context of a program initiated by the Codex Alimentarius Commission in collaboration with the FAO and the WHO, food standards and guidelines are developed in order to protect consumer health and ensure fair trade practices (DUPERRUT et AL., 2003, p. 7).

European law dictates general standards to be adopted in the appropriate legislation of member countries and to be implemented by the competent authorities. The powers of member states to organize their own food controls are not restricted, but the Food and Veterinary Office of the European Commission monitors whether or not these standards are kept. In order to rebuild consumer confidence in European food safety and quality, the European member states have agreed on creating the European Food Safety Authority EFSA, an independent institution with a strong scientific basis.

\*(Entire Chapter 4: Information according to DUPERRUT et AL., 2003, p. 6-32, BVET-Magazine Special Edition BSE 6/2002. p. 18-19 and GUIDON, TLF, 2002)

#### **Switzerland**

Swiss legislation governing food safety follows European and international standards. Such standards include the SPS agreement by the WTO, the Codex Alimentarius, and EU and OIE specifications. In addition to the production of qualitatively sound foods, the focus is on the development of the competitiveness of domestic products intended for export.

#### **ORGANIZATION**

In Article 3 of the Swiss Federal law on foods and commodities (LMG), foodstuffs are defined as products which contribute to the development or maintenance of the human body and which make no claim to healing powers. In addition, the LMG aims at protecting consumers from foods and commodities harmful to human health, ensuring the necessary hygienic standards for food handling as well as protecting consumers from deception. Its scope ranges from agricultural production, manufacturing, processing and storage to food transportation, distribution, import and export. Apart from the LMG, other laws also deal with food safety. These include the Agricultural Law (LwG), the Law for Animal Welfare (TschG) and the Animal Plague Law (TSG).

Ensuring the coordination and monitoring of the implementation of these laws, and setting standards and guidelines, is a federal responsibility, as is the provision of the necessary scientific basis. In the case of food safety, the Swiss Federal Office for Public Health (BAG), part of the Federal Department of Home Affairs, and the Swiss Federal Office for Agriculture (BLW) and the Federal Veterinary Office, both part of the Federal Department of Economic Affairs are the main competent authorities. Their duties (according to DUPERRUT et AL., 2003, p.10) include the following:

- The BAG is responsible for human health issues and the development of standards, as well as for coordinating and monitoring the implementation of legislation in the area of foods. Apart from the testing and authorization of new foods (approx. 350 per year), the BAG is also in charge of maintaining international relations in public health matters.
- The aim of the BLW is the promotion of multifunctional agriculture. In addition, it is in charge of approving agricultural means of production (animal feeds, fertilizers, seeds, pesticides) and participates in the implementation of the LwG and numerous regulations, in particular the organic farming regulations.
- The BVET is the authority for animal health and animal welfare, as well as pest control. It is in charge of the protection of consumer interests and quality assurance of products and of import, transit and export of products of animal origin. Authority is transferred to the BAG as soon as slaughtered animals are stored in slaughterhouses.

As far as milk and milk products are concerned, the Swiss Federal Dairy Research Station (FAM) supports the Dairy Industry Inspection and Advisory Service (MIBD) in all quality controls. The Feed Inspection department, part of the Swiss Federal Research Station for Animal Production (RAP), inspects new products in animal nutrition and monitors the feeds trade. The Swiss Federal Research Station for Ecology and Agriculture (FAL) and the Swiss Federal Research Station for Agronomy (RAC) are in charge of the same tasks for fertilizers, seeds, and plant protection agents.

Monitoring foods in import, transit and export is also a federal responsibility (BVET and Federal Customs Administration). Such monitoring checks that import products fulfil legal requirements. The controls are in the hands of the customs service. However, customs officers have seldom received appropriate training, which explains why controls at the Swiss borders are difficult to organize. Hence, the customs service concentrates primarily on monitoring border crossings and goods tariffs (DUPERRUT et AL., 2003, p. 26).

In Switzerland's federal political system, the implementation of legislation is the responsibility of the Cantons. When it comes to the implementation of legal requirements, the principle of individual responsibility is applied at all levels of the food chain, the most elementary means of which is self-monitoring in accordance with the HACCP method. The competent authorities, for their part, must ensure, by means of an efficient system of controls and monitoring procedures, that the parties involved fulfil their obligations. According to DUPERRUT et AL. (2003, p.11), the implementation of legislation at a cantonal level occurs through two authorities which regulate products which constitute a health hazard; these authorities have the power to demand the parties responsible to establish and eliminate the causes of these hazards:

- **Cantonal chemists**, food inspectors and food monitors check that companies uphold the regulations with regard to declaration obligations, hygiene standards, self-monitoring etc. The checks described in Art. 40 LMG are carried out at random. In collaboration with the BAG, the cantonal chemists developed a procedure to assess the total danger. The aim of this procedure is to make it possible to evaluate the net result of food safety in all companies, thereby also facilitating the harmonization of risk evaluation across the

cantons as well as serving as a working and planning tool for the monitoring bodies. All cantons were obliged to implement this system in the course of 2002.

- **Cantonal veterinary practitioners** monitor the livestock trade, animal health and conservation, meat hygiene in slaughterhouses, and the awarding of contracts to official veterinary practitioners and to veterinary practitioners entrusted with checks on flocks. They also provide support to meat inspectors, veterinary practitioners involved in meat controls and meat controllers who do not have a veterinary diploma.

Articles 28 to 31 of the LMG deal with the sanctions in case of complaints from the cantonal chemist or the cantonal veterinary practitioner. In the case of mild violations, a fine is given. In the case of serious violations, however, offenders will have to stand trial. According to DUPPERUT et AL. (2003, p.31), only a few complaints end in legal action. This is due to court overload, long waiting periods before a verdict is reached, and the lack of technical knowledge of the part of judges.

Due to the division of powers and authorities outlined above, the organization of administration in the field of food safety is prone to coordination problems between the different levels and the associated parties. According to DUPERRUT et AL. (2003, p.14), one reason is the fact that the federal offices which are mainly involved belong to two different government departments, which differ in their mentalities, working methods and administrative systems; this can lead to difficulties in understanding between the offices. A second reason lies in the fact that the focus for goals and evaluation diverges, hereby challenging the Federal departments over and over again. Finally, such a coordination process requires additional expenditure, as well as additional resources in terms of staffing and time, which may lead to information delays, double-tracked actions or gaps. The Federal Assembly therefore pays close attention to the experiences of Switzerland's neighboring countries in restructuring in the field of food safety. Furthermore, the Federal Assembly has assigned the EDI and EVD to elaborate various scenarios, which could possibly lead to the creation of a new management unit or to a grouping of individual parts of the federal offices concerned (DUPERRUT et AL., 2003, p.14).

#### **MEASURES**

In regard to food safety, the policy for consumer protection is mainly based on **self-monitoring** and the **responsibility of the parties** involved in the production chain. The duty of self-monitoring is the central element of food safety, since it fosters the parties' own sense of responsibility, gives companies a certain degree of liberty and does not lead to large increases in state expenditure. Article 23 of the LMG dictates self-monitoring to all companies producing, processing, selling, importing or exporting foods. Now that the regulation on animal feeds has been revised, self-monitoring has become explicitly obligatory for feed producers as well. It is their duty to ensure that their goods always correspond to foodstuff legislation requirements. This entails self-monitoring and rules governing Good Manufacturing Practices (GMP). Standards have been prioritized: general standards of self-monitoring, HACCP-standards and guidelines governing the conduct of employees. Companies are responsible for actively seeking out not only potential hazards, but also their own "hidden" mistakes by means of laboratory analyses. Such mistakes include contamination, foreign bodies or residues of additives. Every company has to prove to the cantonal chemist that it takes practical measures to ensure food safety, especially with regard to the frequency of internal checks, the analysis of critical points and the avoidance of "hidden" mistakes. Some wholesalers can claim their market position in order to force producers and suppliers to implement the principle of self-monitoring. For instance, in the case of agricultural producers, this would make sense because they do not yet fulfil their obligations entirely. Other parties often undergo regular external examinations in order to

fulfil the certification requirements (e.g. certification of feed mills by ProCert, Bio, ISO) (DUPERRUT et AL., 2003, p. 17-18).

According to the LMG, **details regarding the origin, description and composition of the product** need to be stated for all foods. For imported goods, the use of hormones, antibiotics and other microbial performance-enhancers in animal nutrition must always be declared. In addition to the declaration of product and origin, foods may be provided with a label. All of these conditions are stated in Article 14 – 16 of the LwG. They concern methods of production, specific characteristics of a product, origination from a particular mountain region, or a specific declaration of origin. This means that a label does not apply to food safety in the sense of the LMG, but rather to additional quality guarantees or a specific service (DUPERRUT et AL., 2003, p. 32).

According to DUPERRUT et AL. (2003, p.30), globalization makes it more and more difficult to follow the path of products along the entire food chain “from the hay fork to the table fork”. The **traceability** of a product can contribute a great deal to food safety. On the meat market, the animal traffic database (TVDB) aims at ensuring traceability. It aims at fighting animal diseases (nature of disease, place, number of animals affected), regaining consumer confidence and creating export opportunities for Switzerland. In order to monitor the state of health of livestock in a uniform way throughout Switzerland, the BVET introduced so-called “blue checks”. In addition to animal movement control, such blue checks include inspecting animal and udder health, as well as monitoring the obligation to document the use of medication such as antibiotics. The national Foreign Bodies Examination Program of the BVET aims at finding residues in foods of animal origin, hence ensuring that foods are reliable and suitable for export. It is directed centrally by the BVET in accordance with European guidelines (DUPERRUT et AL., 2003, p.10). In Swiss food legislation, traceability is not yet regulated explicitly. However, it is an indispensable prerequisite in order to ensure that health guidelines and measures to protect consumers from deception are met.

When standards for toxic and undesired materials are set, **tolerance values and critical values** are defined. The latter are based on toxicological and epidemiological estimates. If such values are exceeded, health is at risk. In such cases, the authorities in charge are obliged to provide notification according to Article 37 of the LMV. Such products should not reach the customer, and if they are already in stores, producers must recall them. Tolerance values, however, are often lower than is required for health protection. In such cases, good production practices are violated. Health standards, however, are not affected. Generally, such goods exceeding tolerance values may be marketed with or without conditions. This dual-stage system allows for risks to be detected at an early stage, increasing transparency. If tolerance values are exceeded, the parties in the food chain are requested to take appropriate measures (DUPERRUT et AL., 2003, p.13).

As a preliminary measure, **the monitoring of animal feeds** aims at preventing contaminative or undesired material from entering the human food chain. To this effect, the RAP carries out three types of analyses: Research analyses, analysis for third parties and official animal feed inspections. The focus of the latter is on detecting residues of meat-and-bone meal and other types of contamination, in addition to determining the GMO-ratio (DUPERRUT et AL., 2003, p.21). Apart from the protection of the environment and the health of both human beings and animals, the monitoring of animal feeds also, according to GUIDON (TLF, 2002) concerns protection from deception. Besides unfair claims, especially claims of healing properties, attention should be drawn to the presence of GMO-feed components which are subject to declaration. If feeds contain more than 3% of GMO-components, the law requires that this should be declared and the feed labeled as genetically modified. This regulation ensures that buyers of animal feeds can make their own choices.

According to Article 15 of the Food Ordinance (LMV), the BAG decides whether permits for **GMO-products** will be granted. An amendment to Article 22 of the LMV states that from January 2000, tolerated foods containing more than a 1% proportion of GMO-components must be declared (DUPERRUT et AL., 2003, p. 28). The BAG and the BLW collaborate in the authorization of GMO-feeds.

Since October 2001, the **BSE Unit of Switzerland** has been in operation and is planned to remain in existence until 2007. Officially, it is part of the BVET, but tied into the BVET, the BAG and the BLW (DUPERRUT et AL., 2004, p.15). This unit supports the cantons in their implementational tasks and ensures that measures for the eradication of the disease and for the protection of consumers are implemented consistently and uniformly throughout Switzerland. The scope of its tasks reaches from the early detection of BSE-cases, through slaughtering methods, to the intensification of controls in the food industry as well as the supervision of BSE-tests. (BVET-Magazine, Special Edition BSE 6/2002. P. 18-19).

At the end of 1998, the **national programs** „Besondere tierfreundliche Stallhaltungssystem“ (BTS), focusing on special animal-friendly indoor keeping systems, and „Regelmässiger Auslauf von Nutztieren im Freien“ (RAUS), focusing on regular outdoor free-range possibilities for livestock were called into being. These programs grant farmers a certain subsidy per large animal unit (LU) of a species if they farm according to BTS or RAUS requirements. In contrast to the French „Label Rouge“, these efforts are not communicated to the consumer. No labels exist, and these methods of production are not advertised.

The last measure to be mentioned is **consumer education** in terms of public awareness strategies by the BAG. Since the responsibility for quality and hygiene lies with all parties in the food chain, consumers too need to treat foods properly. This includes reading and understanding product and origin declarations, paying attention to the production and especially the expiry date, keeping the refrigeration chain as short as possible and adhering to hygiene rules when storing and preparing food.

### **Reactions from the Private Sector**

Nowadays, production, processing and distribution of foods and consumer goods are inevitably linked with general and specific quality management systems. Besides these procedural instruments, companies in the food industry have various possibilities in the field of strategic management and marketing to position themselves in the market successfully in the long term. In addition to a convincing corporate strategy, these possibilities include effective crisis management and well strong product-political measures for quality assurance which can be communicated easily to the consumers. The aim of this chapter is to illustrate these aspects by means of a few examples from the private sector.

### **Corporate Strategy**

#### **NESTLÉ**

“Increasing the world’s access to higher quality of food, while contributing to long-term social and economic development, and preserving the environment for future generations.” ([www.nestle.ch](http://www.nestle.ch))

Nestlé produces and markets products according to the sustainability principle, the aim of which is to create sustainable values for consumers, clients, employees, shareholders and the company as a whole. Within the scope of its self-imposed commitment, Nestlé follows all locally imposed laws in each of its markets. In certain fields, Nestlé has additional behavioral guidelines in order to ensure the use of high standards for quality assurance (e.g. food safety).

#### **MIGROS**

“According to a study carried out by the IHA-GfM-research institute in 2001, Migros is the largest retail trader in Switzerland and a market leader for products with ethical and ecological additional benefits” (Migros Annual Report 2004). Migros aims for sustainable economic behavior within the mass market. Independently of the degree of awareness and the

financial means of its clients, Migros wants to offer a broad selection of goods produced with due respect to human beings and the environment. In this, cooperation with organizations representing consumers, environmental concerns and development aid issues plays a crucial role, since it helps increase credibility. „We want you to shop at Migros with a clear conscience – Migros cares equally about all dimensions of sustainability.” (www.engagement.ch)

Migros' logo, the orange M, is the most popular, the best-priced and most reputable brand in Switzerland. This was the conclusion of the brand study “Brand Asset Valuator” by Advico Young & Rubicam, published in 2001 ([www.engagement.ch](http://www.engagement.ch)). “More than ever, the brand Migros stands for quality products at favorable prices, for broad public access to culture and education, for fitness and ‘wellness’, for pioneering achievement, even when it comes to protecting human beings, animals and the environment. These are the essential values of the six letters Migros. They create confidence in the company and hence in the brand Migros, and make it a unique Swiss brand. We have captured these matters and values in our new mission statement. The key sentence reads as follows: „Migros is a Swiss company passionately committed to the quality of life of its clients. This sentence will be our lodestar.” (Migros Annual Report 2004)

## Measures

### LABELING

Labels are awards for products which, within the scope of a brand program, fulfil certain requirements (often stricter than laws) regarding origin or production. The aim of such labels is to facilitate differentiation within a market segment and to indicate an added value compared to classic products.

Already in 1970, Migros was the first Swiss wholesaler to commit itself to more environmentally sound production and the keeping of animals in their natural environment: it introduced its “Migros Sano”-label. Nowadays, the umbrella label “Engagement” completes and emphasizes the range of social and ecological labels of Migros, the number of which has now risen to ten. “Engagement” is a connective and characteristic symbol facilitating quick recognition by the consumer. Besides a short description of the specific program, a corresponding internet link offers additional information. In the following, the single label programs are described in brief (see also annex):

- **7-points-meat-guarantee:** Swiss meat products from cows, calves, pigs, turkeys, chicken and lambs kept in animal-friendly surroundings and fed naturally, aimed at the middle segment (between classic and organic). For all species, the BTS-requirements are obligatory; in addition, the RAUS-requirements must be adhered to for poultry and pigs. Genetic engineering is strictly forbidden. M-7-guidelines and TschG must also be kept.
- **Migros-Bio:** Over 900 organic products are produced according to the requirements of Bio-Suisse (Switzerland) and the EU-guidelines (imports). Regular free-range access must be available for all animals, genetic engineering and transportation by airplane are strictly forbidden. Milk, cheese, eggs and meat originate solely from Switzerland, fish from domestic and foreign organic breeding grounds.
- **IP-Suisse:** The IP-Suisse-label designates bread, flour, potatoes and rapeseed oil originating from Switzerland and produced in accordance with the requirements of the government-devised Integrated Production scheme (IP-Suisse).
- **Max Havelaar:** Producers of colonial goods such as coffee, tea, chocolate, bananas etc. which fulfil the criteria of the Fair Trade Labeling Organisation (FLO) receive the label of the Max-Havelaar-Foundation. They are paid a higher price for their goods as well as a fair trade bonus, which they have to re-invest in joint projects

- **Dolphin Safe:** Since 1991, Migros only sells tuna which has been caught by means of dolphin-friendly fishing methods. In addition, the label requires fisheries to take precautions for the protection of seals, ocean turtles, sharks and birds.
- **Marine Stewardship Council (MSC):** The MSC-label designates sea fish from sustainable fisheries. Migros offers salmon, mackerel and lobster as well as various convenience products from MSC-fish.
- **Eco:** Eco stands for environmentally friendly production of clothes, home textiles and shoes. The use of environmentally hazardous and allergenic substances is forbidden and all working processes and auxiliary means (incl. those of suppliers of raw materials) must be recorded in full.
- **Bio-Cotton:** Cultivation of bio-cotton occurs without the use of artificial manure and pesticides. Clothes and home textiles made from bio-cotton are produced according to Eco-guidelines.
- **Mioplant Natura:** Potted plants, cut flowers, plant protecting agents and plant soil fulfil the guidelines of IP-Suisse.
- **Forest Stewardship Council (FSC):** The FSC is an international union of environmental organizations, representatives of local ethnic groups and trade associations committed to sustainable forest cultivation. Migros sells FSC-products in the following ranges: stationary, household, furniture, do-it-yourself as well as gardening and camping.

In parallel with these product-specific programs, Migros commits to sustainability at a comprehensive level: by means of a code of conduct based on the conventions of International Labour Organization (ILO), all non-food suppliers are obliged to uphold particular human rights standards in their production plants. This code prohibits all discrimination on the basis of gender, culture, religion, political views or sexual orientation. In addition, child and forced labor are banned and working conditions must be safe and pose no health risks. Furthermore, employees must be allowed to engage in collective negotiations and to join trade unions. In the food division, the rules of GAP (Good Agrarian Practice) are applied, which were developed by Eurep (Euro-Retailer Produce Working Group).

(Information according to [www.migros.ch](http://www.migros.ch), [www.engagement.ch](http://www.engagement.ch) and Migros Annual Report, 2004)

**Coop**, Switzerland's second-largest wholesaler launched its competence-brand Coop-Naturaplan (CNP) in 1993. CNP is an umbrella-brand with two lines: organic products from integrated, near-nature farming (Bio-Suisse guidelines) and meat and eggs from animals which have been bred and kept under good conditions where their welfare is central (BTS or RAUS as the minimum standard required). Imported products must fulfil at least the legal requirements imposed on Swiss products, and companies have to adhere to the environmental and social legislation in their own country (legal compliance). As in the case of Migros, the Coop's suppliers have to uphold the UN convention on children's rights as well as the ILO-convention.

(Information according to [www.coop.ch](http://www.coop.ch))

#### **CERTIFICATION**

Certifications are inspections of companies, processes, products and services according to certain criteria. Such inspections are executed by external organizations.

**The Feed safety concept for commercial feed producers** was developed by the company ProCert by carrying out a risk analysis according to the HACCP method (Hazard Analyse Critical Control Points). In addition, requirements for feed producers are constantly adapted to new developments at the levels of legislation, production and processing, as well as to new problem areas. If a given feed producer fulfils the requirements set out in the "Specifications for Commercial Feed Producers in Brand Programs" at all his production locations, he may send a company inquiry form to ProCert by way of an application for audit. If all auditing is

successful, ProCert issues a certification of conformity. The producer is then admitted to the brand program in question and the producer's feeds are cleared by the manager of the program. In order to ensure constant monitoring of feed producers, ProCert determines the interval between the audit outcome and the company constellation and the first regular follow-up audit. In addition, ProCert or the manager of the program may initiate and carry out random checks.

**Migros** and **Coop** both appoint independent audit companies to monitor compliance with their numerous operational guidelines and requirements as well as those guidelines specially set up for suppliers (bio inspecta, Global Food Safety Initiative (GFSI), International Retail Network (EHI), Swiss Animal Welfare (STS), Société Générale de Surveillance (SGS) and Swiss Quality Testing Services (SQTS)).

#### **EXCLUSIONS**

Sometimes measures are taken to exclude certain production methods or regions. One example of this is the ban by the Coop and Migros on chicken imported from China:

After the Basle cantonal laboratory found excessive levels of antibiotics in Coop products made from Chinese chicken, Coop immediately withdrew all products containing Chinese chicken on February 22, 2002. At the same time, Coop decided not to sell any Chinese chicken products from this date onwards. According to Coop, the reason for this action was the loss of confidence in Chinese animal products. In future, producers from Switzerland and the EU should be favored and should follow the requirements set out by Coop. A most welcome ecological side-effect of this decision was the alleviation of the necessity for long-distance transportation, given the proximity of the new fattening farms. Despite Coop's decision, Migros stated in a press release that it would keep Chinese chicken as part of its line of goods for the time being. However, Migros stated that it would oblige its suppliers in China to follow more restrictive guidelines, the implementation of which would be monitored locally by Migros staff. Only four days later, however, antibiotic residues were found in Chinese chicken bought at Migros. Migros reacted immediately and followed the example set by Coop.

(Information according to articles (from 28.01.2002 to 11.03.2002) found in the press archive of [www.schweizerbauer.ch](http://www.schweizerbauer.ch), [www.coopzeitung.ch](http://www.coopzeitung.ch) and ANWANDER, TLF, 2002)

The discussion on how to deal with products partly containing raw materials derived from genetically modified organisms (GMO) is also characterized by a strategy of exclusion. As in the example of chicken imports from China, population preferences and the power of consumer organizations carry great weight and tend clearly towards "strong refusal". European regulations on GMO approved for human and animal nutrition thus reinforce the requirements regarding labeling (duty of declaration) and traceability of foods. These requirements will be applied in part in Swiss food legislation, which is currently being revised and is planned to come into force on January 1, 2005. Private sector parties have very varied stances on this issue:

**Nestlé:** "Nestlé shares the view of the WHO, FAO and OECD and numerous independent scientific commissions, which holds that GMO-crops and food components produced from such crops are safe and may be used in foods. Genetically modified plants and food components extracted from such plants are thus as safe as their traditional equivalents. **Nevertheless, in this debate the opinion of the consumers is the sole arbitrator.** In consideration of consumers' freedom of choice, Nestlé Switzerland uses only raw materials free from GMO, and suppliers have to be able to prove this. Consequently, Nestlé will not have to label its individual products accordingly". ([www.nestle.ch](http://www.nestle.ch))

**Migros:** "Genetically modified foods are taking over the world. **However, Swiss people follow this development with concern.** For this reason, Migros will exclude genetically modified products for as long as possible. However, in practice this is not actually as simple

as it sounds: There are certain ingredients, such as corn starch, where genetically modified organisms can no longer be identified in the end product. This is why Migros demands transparency in the production of products and traceability back to the producer in order to be sure to buy and sell goods free of any genetically modified material". (Migros Annual Report 2004)

**Coop:** "Coop is committed to the responsible and sensible handling of genetic engineering in the production and processing of foods and consumer goods. Coop does not tolerate any ingredients and additives from genetically modified raw materials in its own brands. Certainly, in the USA, Argentina and Canada genetically modified soy and corn crops are currently grown on a large scale. However, we at Coop believe that the long-term environmental effects of these plants, which are mostly resistant to herbicides or insects, have not yet been studied well enough for Coop to unreservedly approve large-scale cultivation. Coop allows the use of vitamins and enzymes that have been produced by means of methods involving genetic engineering. Such production occurs within closed systems, similar to the production of medication and, in comparison to chemical-synthetic production, allows substantial savings of resources such as energy, water and raw materials. Coop informs consumers about the use, benefits and risks of genetic engineering and is committed to guaranteeing the free choice of the consumer". ([www.coop.ch](http://www.coop.ch))

### **Communication Strategy**

#### **CRISIS MANAGEMENT**

In case of a crisis, the top management needs to be able to react quickly in order to avoid an information vacuum. This might give room for speculations which could potentially cause great damage to the company involved. It is most important for the company to issue a statement as quickly as possible after the incident has become public. This statement should be taking a clear stance and should give concrete information as to the causes and consequences of the incident (see the example in the annex of the recall of the "Pralinato" ice cream):

1. **Which products are affected?**
2. **What happened?**
3. **What risks are there?**
4. **What measures need to be taken and why?**
5. **Future Consequences?**

In order for the intended message of such statements to be understood clearly by the addressee, it is important to bear in mind the guidelines for risk communication as set out by LÖFSTEDT (2003, p. 3-4) (discussed in chapter 2.3.2 above). The statement made by Coop in the GMO-debate (see section 5.2.3 above) does not take into account the five points just outlined, nor the principles of risk communication according to LÖFSTEDT, and it is therefore difficult for the average consumer to situate it.

#### **MANAGEMENT LEVEL AND FOOD SAFETY MEASURES**

**Nestlé:** "Out of respect for the trust which millions of consumers place in Nestlé day after day, Nestlé has always opted for a generally accessible and transparent information policy. Nestlé consumer services live up to this commitment every day in every country". ([www.nestle.ch](http://www.nestle.ch))

**Migros:** Migros communicates more quietly and in a more reserved way than its competitors. Migros focuses more on the communication of its product competence and less on the company itself. "Our company's philosophy is to offer our clients high-quality products without a great deal of advertising. (...) In order for the company and hence the brand Migros to be trustworthy and remain a unique Swiss brand in the future, we will continue to promote the idea of "Migros" and take the best possible care of the brand – by engaging even more intensively in communicating our mission statements and image, but also by instilling clear

order among the numerous Migros sub-brands". (Migros Annual Report 2004) The company's ideology and corporate strategy are actively promoted through the setting up of institutions such as fitness centers, courses at the company's adult education school (Migros Klubschule), the "Kulturprozent" (sponsoring of cultural events and supporting artists) and projects in the field of sustainability, all of which help raise consumer awareness.

According to EGLI (2002, p.7), communication, or rather, communicability, constitutes an important factor in selecting strategies and marketing tools. If these strategies and their contents cannot be communicated to the end user, they have little value for the success of a company or a product. This is the case, for instance, if legislation prohibits the use of self-evidences in advertising (as is the case in Swiss legislation). EGLI (2002, p.7) mentions eggs as a good example: "Since it is illegal to keep battery hens in Switzerland, advertising stating that eggs derive from non-battery hens is not allowed". Based on this approach, EGLI (2002, p.7) maintains that investments in corporate image and food safety are not only assessed in terms of their impact on internal and external product quality, but also with regard to their communicability. The added value of a product resulting from the implementation of a given measure must be clear to the consumer due to the corresponding information he/she has received. Otherwise, operational company goals will not be reached (see chapter 2.4.1 above).

## **Synthesis and Outlook**

### **Conclusions**

**Question 1:** Consumer confidence in food quality and safety has declined due to scandals in the past years. Can this confidence be rebuilt by means of regulative measures on the part of the authorities?

Given the mechanisms of the human psyche (e.g. cognitive dissonance) and other influences on consumer behavior (efforts of private parties), which should not be excluded from this analysis, one would have to conclude that the question cannot be answered. However, new works in the field of opinion and trend research, such as the UNIVOX study (TUTKUN, 2004, p.17) might give some indications. In this study, 62% of those interviewed stated that they had confidence in Swiss products. This figure, which constitutes an increase of 10% in comparison to the years before, is likely to be at least partly due to efforts by the national authorities to improve food safety. Other evaluations are not available.

**Question 2:** What (marketing) instruments are available to private parties in a problem situation? How can they tackle crisis management (momentary, short-term reactions) and what modifications in product and communication strategies (medium and long-term adaptations) are most promising?

If difficulties arise in the field of food safety, the companies affected have to react as quickly as possible in order to prevent consumer confidence in the company's products being shaken through misinformation. Corresponding press releases on causes and measures should be formulated as simply and clearly as possible according to the risk communication principles stated in chapter 2.3.2 above. In the long term – apart from the implementation of general and specific quality management systems – private parties can choose from three ways of dealing with consumer demand for greater food safety:

- Labels which have higher requirements than the laws
- Certification through independent auditors
- Exclusion of particular production regions (e.g. China for chicken) or production procedures (e.g. GMO)

All three cases require a credible company and communication strategy in order to be effective. The communicability of strategic orientation and marketing measures is a key issue in the assessment of the strategy's economic success.

**Question 3:** Can the gap between the objective danger and the subjective risk perception of the consumer be reduced by means of credible action by the parties concerned, improved information and communication?

The way quality and safety of foods or companies is communicated is crucial, irrespective of the question of whether information is given by government or private parties (EGLI, 2002, p.6). Similarly to the marketing mix, information on food safety needs to be adapted to human behavior for it to have the desired effects. In this, both the mechanisms of consumer risk perception (a) and the fact that consumers have a limited ability to interpret the scope of certain dangers correctly (b) need to be taken into account. On this basis, the best method of resolution seems to be the recommendation by ANDREWS<sup>1</sup> in chapter 2.2.4 (to address b), in combination with reinforced indications of the consumer's own responsibility (to address a), along with the application of the rules of risk communication stated in chapter 2.3.2.

### **Impact of Food Safety Standards on the World Markets**

In most third- and second-world countries, and in countries whose main exports are agricultural products, food laws and their implementation are less effective than in industrial countries. Generally speaking, either the current regulations are mere copies of laws implemented in the early twentieth century by the former colonial rulers, or successive new regulations have been ratified without taking into account those already in existence. In addition to the lack of financial and human resources for scientifically grounded clarification and monitoring, there is also an absence of functioning systems for the implementation of national edicts and international recommendations (LUPIEN, 2002, p. 406). The latter are part of the three WTO-agreements on food and agriculture: the Agreement on Agriculture, the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) (DUPERRUT et AL., 2003, p.7). These agreements aim at ensuring minimum sanitary standards, promoting free and fair trade, and prohibiting protectionism on the agricultural market. However, according to some **sceptical** scientists, such as LUPIEN (2002, p.10-13), some rules and instruments for the improvement of food safety in industrial countries may inhibit trade and may be referred to as technical barriers:

- **Precautionary principle:** If there is the slightest doubt that a product may constitute a residual risk to human health or the environment, WTO member states are entitled to take restrictive precautionary measures. Such measures may remain in force until enough scientific data on the actual hazard potential has been found. In this way, among other things, imports may be stopped, e.g. the EU import ban on hormonally treated beef (LUPIEN 2002, p.10) or the critical values for aflatoxine in peanuts in the EU, which have had a long-term detrimental effect on African peanut exports (MITCHELL, p.20).
- **Traceability:** Implies the existence of functioning monitoring and documentation systems or sufficient financial means for the procurement of such systems. Institutionalizing Track and Trace instruments takes a great deal of time (until such instruments have been implemented, the countries concerned cannot participate fully in world markets) and increases production costs (LUPIEN 2002, p.11).
- **Labeling:** Declaration of product details and origin cause high additional costs for foreign companies, e.g. if a product or a production process must be certified by monitoring bodies in the import country (LUPIEN 2002, p.13, and MITCHELL, p.58).

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<sup>1</sup> "One of the essential outputs of any risk analysis must be risk communication in a language that consumers and the media can understand, interpret and act upon. The language must quantify the risk in an unambiguous way so that the consumers may exercise informed choices. This is a much needed area of research: the vision of a simple, universally understood, universally applied, symbol-based risk communication scale from "no known risk" to "do not consume" is very appealing." (ANDREWS, 2001, p. 40)

Apart from these concrete measures, political and market-related developments in industrial countries may have some influence on the world markets:

- Politically ordained regulations in a given country may give rise to cost disadvantages for domestic producers. As a consequence, domestic producers often try to block imports from countries which have less restrictive requirements by means of political pressure (MITCHELL, p.58). This is mainly the case in countries where the agricultural lobby has strong political influence, and may lead to protectionist actions by the government.
- Over the past few years, consumers in industrial countries have developed a strong preference for foods from their own country or region, as well as for foods produced by especially ecological or animal-friendly farming. Pressure from consumer organizations may lead to discrimination against particular production countries, e.g. major suppliers excluding chicken from China even once the government's import ban had been lifted. In addition, especially in Europe there is strong resistance to genetically modified crops, though these are particularly attractive for third-world countries and large-scale agricultural exporters. The corresponding declaration regulations have a negative impact on the producer countries' sales.
- In the context of the SPS-Agreement, industrial countries were called on, in cooperation with international organizations such as the FAO, to assist third-world countries in the adaptation of their laws and monitoring systems to meet the requirements of the Codex Alimentarius. This can be problematic, however, in that this collaboration often amounts merely to bringing the legislation into line with that which is already in existence in industrial countries, without taking account of the specific needs of the countries concerned (LUPIEN, 2002, p.408).

Despite this negative impact in the short and medium term, a worldwide improvement in food safety must, in the long term, go hand in hand with the existing efforts to ensure global food security. "Consumers are generally willing to pay more for safer food, but the amounts they are willing to pay might differ." (MITCHELL, p. 17). This is a result of the uneven distribution of wealth in the world, and may lead to a situation where only wealthy people are able to afford safe food, whereas poorer people have to reckon with health risks. The only way to counter the possible development of a global dual market of this kind is through governmental regulation of national food safety in every country of the world.

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## Annex

### Causes of the Increased Need for Food Safety

#### Incidents with a Knock-on Effect

##### Bovine Spongiform Encephalopathy BSE (global)

BSE, also known as “Mad Cow Disease”, is a severe brain disease which affects animals of the bovine species. A group of lethal prion diseases, so-called TSEs (Transmissible Spongiform Encephalopathies) cause a sponge-like degeneration of the brain. Prions are proteins produced naturally in the body, which, in case of illness, show extensive structural changes in the amino acid chain. In this way, they lose the ability to fulfil their proper biochemical function and can no longer be broken down by the body’s own enzymes. In addition, interaction with deformed prions causes healthy ones to degenerate also. This results in agglutination in the areas of the central nervous system in which breakdown takes place, especially in the brain, where the death of numerous inadequately supplied brain cells creates cavities. According to the current state of knowledge, BSE is transmitted by the use of meat and bone meal from infected specific risk material (medulla, brain, head, spleen, thymus, tonsils, eyes and intestine) in animal feed.

The first case of BSE worldwide was discovered in Great Britain in 1985. Other isolated cases soon became an epidemic spreading to the European mainland (Switzerland 1990, France 1991, Germany and Spain 2000) and later to other continents as well (e.g. Japan 2001, USA 2003). The crisis climaxed in 1996, when it was reported that transmission to humans results in a new variant of Creutzfeldt-Jakob disease (n.v. CJD). According to the findings of British scientists, infection occurs through the consumption of lymphatic tissue, nervous tissue, or mechanically recovered meat and inner organs which are not entirely bone-free.

*Table 0.1: Data for BSE (valid for December 1, 2003)*

	<b>Switzerland</b>	<b>France</b>	<b>Great Britain</b>
Total no. of cattle	1.6 million	20 million	11 million
No. of cattle with BSE	413	662	179,316
Humans with n.v.CJD	0	4	106

*Source:* [www.m-wv.de/krankheiten/prionenkrankheiten/bse.html](http://www.m-wv.de/krankheiten/prionenkrankheiten/bse.html)

BSE is an illness with an incubation period of up to five years. It has not been studied greatly and can only be identified clearly in the dead animal. The economic costs resulting from this and from the fallback in meat consumption, as well as the dangers for general health prompted the governments of the countries concerned to take corresponding measures.

*Table 0.2: The most important measures during the BSE crisis*

<b>Measures</b>	<b>Switzerland</b>	<b>France</b>	<b>EU</b>
Official import ban on live cattle, meat and by-products of bovine animals and bone meal from the UK	1990	1996	1996
Ban on feeding of bone meal to ruminants	1990	1990	1994
Removal of specific risk material from the food chain (at slaughterhouses)	1990	1996	2000
Obligation to notify authorities of cases of BSE	1990	1990	1990
Removal of risk material from the feed chain (at slaughterhouses)	1996	1996	2000

Killing of all direct offspring of BSE-cows, destroying herds and cohorts	1996	1996	2001
Introduction of an active surveillance program; quick test for BSE for cows older than 30 months intended for human consumption	1999	2000	2001
Ban on feeding bone meal to all livestock because of dangers of cross-contamination	2001	2001	2001

Source: [www.m-ww.de/krankheiten/prionenkrankheiten/bse.html](http://www.m-ww.de/krankheiten/prionenkrankheiten/bse.html) and *BVET-Magazine Special Edition BSE 6/2000 p. 2-24*

(Information according to [www.eufic.org/de/food/pag/food34/food342.htm](http://www.eufic.org/de/food/pag/food34/food342.htm), [www.m-ww.de/krankheiten/prionenkrankheiten/bse.html](http://www.m-ww.de/krankheiten/prionenkrankheiten/bse.html), *BVET-Magazine Special Edition BSE 6/2000 p. 2-24* and *BVET-Magazine 1/2004 p. 16-18*)

### **Dioxins (EU)**

In June 1999, animal feed contaminated with dioxins was discovered in Belgium. These dioxins originated from severely polluted waste oil used in transformers, which came into contact with the edible oil used in the animal feed production. Contaminated feed was used in large quantities in the production of eggs and chicken meat in Belgium. A few weeks later, traces of dioxin were also found in clay (kaolin) of German origin. Kaolin was used as flux material in the production of animal feed.

Dioxins belong to the group of aromatic, halogenized hydrocarbons and are formed when chlorinated hydrocarbons are produced and processed, e.g. when combusting oil products (benzene, fuel oil, plastics). Since they do not break down easily, they are deposited in the top layer of soil, in plants, and in human and animal fatty tissue. Humans mainly absorb dioxins through the air, vegetables and lettuces, as well as through fat-high animal products (meat, milk, butter etc.).

In high doses, dioxins have an extremely toxic effect and may lead to chlorine-acne, cauterization, cancer and birth defects. In addition to short-term extreme exposure, the entire intake over a longer period of time needs to be taken into consideration, since dioxins accumulate in the body. For this reason, in 1999 both Switzerland and the EU took measures to reduce dioxins in foods even though no increased risk could be proven because of the low concentrations detected:

- In addition to a ban on the import of Belgian chicken, pork and beef products, goods in stock were withdrawn from sale
- The use of kaolin in feed was completely banned
- The public were made aware of possible sources of dioxin pollution (illegal waste burning etc.)

(Information according press release BAG on [www.bag.admin.ch](http://www.bag.admin.ch))

### **Foot-and-Mouth-Disease (EU)**

In 2001, a visit of a veterinary practitioner to a farm with contaminated pigs caused an outbreak of foot-and-mouth disease in Britain. In the course of the spread of the disease and the implementation of measures to combat it, over six million animals had to be destroyed. British agriculture suffered a loss of 900 million pounds sterling, in addition to losses in tourism of more than four billion pounds sterling. All neighboring countries issued a temporary import ban on all living animals as well as meat from the UK and took additional precautionary measures.

(Information according to an article dated 12.03.2004 on [www.schweizerbauer.ch](http://www.schweizerbauer.ch))

### **Pesticides (Germany)**

Given its carcinogenic effects and the fact that it damages human genotype, the use of nitrofen, a pesticide, has been illegal throughout the EU since 1988, and since 1990 in the new German states. In the middle of October 2001, a scandal concerning this herbicide

nevertheless started to brew in Germany: in Malchin (Mecklenburg), the company NSP used a warehouse, which had previously been used for the storage of pesticides, to store corn. The corn came into contact with the contaminated floor, and was in turn severely contaminated with nitrofen. The corn was subsequently delivered to GS Agri, a feed producer, which processed it into feed for poultry and pigs to be sold nationwide to organic farms. These farms supplied well-known companies such as Meica and Hipp. As early as November 2001, traces of nitrofen were found in turkey meat when Hipp tested incoming supplies. In April 2002, Meica initiated a recall of organic chicken sausages for similar reasons. Despite these circumstances and numerous further indications coming to the attention of the authorities, the scandal did not become public until May 2002. An official investigation was called for and 450 companies were shut down because nitrofen was found in other products as well (eggs, pork, milk). In 2004, it was decided that the people responsible will not have to face prosecution.

(Information according [www.earth.prohosting.com/khdit/BSE/FAQ/Nitrofen.html](http://www.earth.prohosting.com/khdit/BSE/FAQ/Nitrofen.html))

### **Antibiotics (global)**

At the beginning of 2002, traces of the antibiotic chlorineamphenicol (banned in Switzerland and the EU) were found in shrimps and prawns of Chinese origin. During the investigations, residues of this antibiotic were also detected in chicken and rabbit meat. At the end of 2002, the EU banned chicken and rabbit meat, crustaceans and fish, as well as honey, which originated from China. Despite calls from the Swiss Foundation for Consumer Protection (SKS) and the Swiss Farmers Association (SBV) to follow this measure, the Swiss Federal Office for Public Health (BAG) and the Veterinary Office (BVET) issued a press release stating their opposition to an import ban for Chinese products. Only after residues of enrofloxacin and chlorineamphenicol were found in 38 of 62 samples tested by cantonal laboratories did the government ban the import of Chinese chicken on February 27, 2002. Migros and Coop, the largest wholesalers, had already banned Chinese chicken on the basis of their own tests.

(Information according to articles (28.01.2002 to 05.03.2002) on [www.schweizerbauer.ch](http://www.schweizerbauer.ch))

## **Scientific and Technical Progress**

### **Genetically Modified Organisms (GMO)**

Changes in the genetic code of living beings have always occurred through natural mutations and classic breeding methods. The issue became explosive when it was found out that foreign genetic material could be transferred to an organism (transgenity). Ever since, foods made from or containing GMO-products are very much disliked, especially in Europe. People fear, for instance, that allergies provoked by transgenic proteins might be dangerous for human health and/or the environment or that the drift of genetically modified DNA onto plants in the natural eco-system could have long-term detrimental effects. Fundamental ideological reservations (Save Life) and the current lack of knowledge of the exact methods and benefits of this form of biotechnology are further reasons which contribute to consumers' rejection of these methods. "In the absence of any definitive long-term studies showing that these foods are safe, civil society groups and consumers have latched onto the idea that mandatory labeling of GM foods will enable consumers to select their own diet and enhance long-term monitoring and surveillance of GM foods to detect unanticipated risks of the products." (SMYTH & PHILLIPS, 2003, p. 389)

### **Methods of Irradiation**

"Food irradiation" refers to sterilization (freeing from germs) by means of ionizing irradiation. In contrast to other methods of preservation, irradiation does not require any temperature rise and is therefore also known as "cold sterilization". The ionizing irradiation penetrates the food, including its packaging, and releases energy step by step on its way.

Besides killing dangerous micro-organisms, pests, insects and moulds, the energy deposited in the irradiated food leads to the creation of reactive particles, which react with the food components within a fraction of a second. However, the food itself does not become radioactive when it is irradiated ([www.bag.ch](http://www.bag.ch)). From the very beginning, the irradiation of foods gave rise to fears of effects detrimental to health (cancer). For this reason, hundreds of studies have been carried out in the course of the past decade, but none has provided proof of such a danger. Despite this result and the assurance of international and national health authorities that food irradiation does not signify new risks, consumers in Germany and other European countries vehemently oppose the procedure.

## Overview of the Levels of Turnover of the Ten Migros Labels



Source: [www.engagement.ch](http://www.engagement.ch)

## Recall of a Batch of “Pralinato” Ice-creams, Nestlé Switzerland

### Important information for our consumers of Pralinato Classico and Bianco (multi-pack and individually packed ice-creams)

Pralinato Grande and Pralinato MiniMini (multi-pack, 12 ice-creams) are **not involved** and may be consumed without reservations.

Recently, some clients drew our attention to a strong change in the taste of the “Frisco Pralinato Classico” ice-cream. The reason for this was that residues of a cleaning product, authorized for the food industry, got into a few ice-creams at the start of the daily production line. The products concerned were immediately recalled from stores, and all possible measures have been taken to prevent any reoccurrence of this incident. However, we cannot rule out the possibility that some of these ice-creams may have reached customers. For this reason, even though there is no health risk, we have decided on a voluntary public recall of “Pralinato Classico” and „Pralinato Bianco”. By taking this measure, we hope to avoid any unpleasantness for our customers and to retain their confidence.

“What do I do if I have a Pralinato Classico/Bianco at home in my freezer?”

1. Please dispose of any ice-creams at home.
2. Please send us the following in an envelope, stating your name and exact address (clearly legible): for a multi-pack (8/5 ice-creams), the fabrication code and the expiry date (see picture); for a single ice-cream, the empty packaging foil.
3. Postal Address: NESTLE Consumer Services, Pralinato, PO Box 8484, 1811 Vevey
4. We will reimburse the full value of the product(s), including postage, in the form of postage stamps or similar.

Please do not return the products to the point of sale! Should you have any further questions, please do not hesitate to contact the free telephone-number 0800 860 050. As of Friday, July 16, 2004, all points of sale will be supplied with proper products. Many thanks for your understanding!

