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# *Ethical considerations in the agri-food chain*[*]

**Abstract**

A large proportion of the world population lack proper access to food. However the strong ecological impact of agriculture highlights the need to implements a sustainable and multifunctional agriculture in the future. Apart from securing safe food for everybody consumers' concerns need to be respected and their dietary habits and consumption have to be influenced in order to reduce our ecological footprint.

Key words: agricultural ethics, food security, food safety

## Introduction

The need to maintain productive agriculture worldwide is emphasised by the fact that a large proportion of the world population lack proper access to food. According to FAO 963 million people suffer from hunger in the world. All of us are interested in foods, their availability, safety, nutritional status and wholesomeness. Our survival, health and welfare depend on the food supply, the production, processing and distribution of safe and healthy foods (Bánáti, 2009 a). Agriculture and agri-food industries are of ultimate importance providing a sufficient amount of high quality and safe food. After the 2 nd World War the most important question was the requested quantity of food to be provided. Later on, as a result of economical development, there was a demand for high quality foodstuffs and in the last decades, food safety is in the focus. In addition, environmental issues such as environmental pollution,

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sustainability or biodiversity are also determinant questions in the agri-food sector. According to the FAO High Level Expert Forum on How to Feed the World in 2050 (FAO, 2009), in the 21st century agriculture has to face many challenges e. g. growing world population, climate change, decreasing arable land, protection of water resources, protection of biodiversity, depopulation of rural areas, food transport and distribution, food waste and so on.

## Challenges in the agri-food chain

There are socio-economical and socio demographical changes in modern societies. According to FAO estimates, there will be 9.1-9.2 billion people by 2050 (FAOSTAT, 2009), for whom sufficient amount, wholesome and safe foodstuffs have to be provided so food security is becoming a more and more important issue nowadays. According to FAO the main problem is not the availability of foods but food accessibility. There is a sufficient quantity of food produced worldwide, although there are 30-40 % losses due to not proper handling and storage, and many people do not have access to the available sources. In order to solve this problem an integrated approach on agricultural technologies is needed, which based on a system where its constituent units are balanced, not just at technical level, but also at ethical level (EGE, 2008).

Because of the mass production food safety has become more and more important from the production through the procession and storage to the delivery. In the last two decades there were series of food scandals (e. g. BSE, dioxin crises, melamine crises) and scares all over the world and in the European Union as well which staggered consumers' confidence in food safety. Besides that, there are uncertainties in the societies regarding new emerging diseases like avian flu (H 5 N 1) or new influenza (H 1 N 1), and fears about novel technologies and novel foods. Considering that there is a strong correlation between our diet and health status and there is still limited information available about the safety of certain new technologies, the consumers' worries are absolutely understandable.

Food safety can not be separated from nutrition and from consumers' health. **Dietary habits and lifestyle** are changing in the developed countries, and the number of diet-related diseases is increasing. According to the World Health Report of the World Health Organization (WHO, 2002), there is a strong correlation between most of the human diseases (41 %) and our diet. Further-

more, there are 300 million obese and 1 billion overweight people worldwide. It is a burden on the societies and on the health care systems.

**Environmental concerns** such as the availability of sufficient resources (e. g. safe clean drinking water) or usage of resources in a balanced and sustainable way are more and more important. In order to produce food of animal origin we need huge amount of feedingstuffs (e. g. approx. 1.5 kg feed to produce 1 kg fish, 4-4.5 kg feed for 1 kg pork, and almost 10 kg for 1 kg beef meat to produced. Agriculture and food industry need a huge amount of water, too. For example 1 kg potato can be produced by the use of 50 litres of water, for 1 kg corn 1400 litres and for 1 kg poultry – including the production of the feedingstuffs – we need more than 3500 litres of water. Three-forth of the water used by the agriculture sector in certain countries. Drinking water is going to be a strategic element in the 21st century.

The **ecological footprint** measures humanity's demand on the biosphere in terms of the area of biologically productive land and sea required to provide the resources we use and to absorb our waste. In 2005 the global Ecological Footprint was 17.5 billion global hectares (gha), or 2.7 gha per person (a global hectare is a hectare with world-average ability to produce resources and absorb wastes) on average. On the supply side, the total productive area, or biocapacity, was 13.6 billion gha, or 2.1 gha per person. Ecological footprints can be very different in the different countries. The average ecological footprint was 2.7 hectares in 2005 but this figure was 0.6 ha in Bangladesh, while in Austria it was 7.8 ha and 9.4 ha in the United States (WWF, 2008).

Another environmental problem is the loss of **biodiversity**. There are 250 000 plant species known to human kind and more than 30 000 plant species are edible, although only 7000 species are used as foodstuffs. 120 plant species of the 7000 are cultivated today and there are only nine species worldwide, which provide more than three-fourth of the human food. There are only three species that provide more than fifty percent of human food (FAO, 1999).

There are several other ethical concerns related to the agri-food sector, like animal welfare, **novel technologies**, biofuels, or food waste. Technologies are being used by the agricultural and the food sector. The best known and the most controversial one is the genetic modification (GM) of plants. There are other novel technologies such as **nanotechnology**, which has a huge potential, but consumers may have fears of this technology, because they do not have proper knowledge of that such as in the case of GMOs. Consumers do not

understand novel technologies, they do not have a proper knowledge of those so they have concerns and fears. Nanotechnology could be a new technology providing solutions for agriculture, but if there is no proper societal dialogue in order to inform the society based on carefully chosen, easily understandable and targeted information, the new technologies will not be accepted and consumers will reject them. **Animal cloning** could be another example in the food sector for novel technologies feared by consumers. A Europe-wide study shows that on average 43 % of consumers would not like to eat meat and milk derived from cloned animals (Eurobarometer, 2008). Doubts have been expressed as to whether the current situation regarding the welfare and health of animal clones is ethically justified by the existing arguments in support of cloning for food (Bánáti, 2009 b).

Another problem we have to face soon is the **food waste**. Over 4 million apples are thrown away every day worldwide. And a third of the food bought in the United Kingdom ends up being thrown away (Ventour, 2008). There are huge amounts of foods wasted worldwide.

Globalisation has an impact on the availability of food and on changes in the lifestyles of many in countries which critically depend on their agricultural base. According to certain estimates, an average carrot is travelling 1.838 miles from the field to the table of the consumer (Rich, 2003). One third of the goods transported on the roads are agricultural products and foods, which on one hand cause severe environmental problems, and on the other hand globalisation resulted in the decline of local and regional production.

There are several other concerns, such as the intellectual property rights, trade and transport related problems, equal opportunities and global trade, fair competition, increasing food prices, research funding and brain drain, which could not be discussed in the course of this study. These concerns also have an effect of the agri-food chain and human health as well (Bánáti, 2006).

## Conclusions

We deal neither institutionally nor at a scientific research level systematically with ethical issues related to agricultural and food sciences appearing in the food chain (Bánáti, 2008). The need to maintain agriculture to be productive worldwide is emphasised by the fact that a large proportion of the world population lack proper access to food and by the recent food crisis in 2007

and 2008. However the strong ecological impact of agriculture highlights the need to implement a different model in the future: a sustainable and multifunctional agriculture where, apart from securing safe food for everybody, stewardship of the land, preservation of the resource base, the health of farm workers, preservation of the small biota that are rich in biodiversity, the value of rural communities and the value of the agricultural landscape acquire important status (EGE, 2008).

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