

# Food safety and sustainable development essay sample

[Food & Diet](#)



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## 1. Introduction

Food safety is essential for public health. The course of food security and safety helps us understand that safety standards and regulation are necessary to improve inspection of foods. The attempts of food industry reducing production costs and providing convenience foods may create conditions for new emerging pathogens and major food borne outbreaks from current pathogen group. Cross-contamination is the most important factor relating to the presence of pathogens in prepared foods. The food must be made safe by preservation and producing using HACCP and GMP. The definition and classification of various additives are also studied in the course. In this paper, the issue of food safety including quality security, nutritional balance and sustainable supply is presented. Following that, the author introduces the application of several novel technologies in food manufacturing. Finally, the recommendations on the establishment of sustainable food development system are proposed.

## 2. Food safety and sustainable development

In recent years, the issue of food safety has become a worldwide hot topic. Food and Agriculture Organization believes that the food safety systems in both developed and developing countries encounter unprecedented challenges, especially in the case of global trade. Food is never intrinsically safe because nutrients are ideal for microbial growth and processing or packaging can introduce hazards. Generally speaking, the issue of food safety includes quality security, nutritional balance and sustainable supply (Grunert, 2005).

### 3. 1 Quality security

Quality security of food means that the food should not contain toxic and hazardous substances resulting in acute or chronic infectious diseases (Jacob, 2010). From the perspective of food composition and technology, safe food is not completely without risks, but reduces the possible risk to a minimum range while providing best quality. Some people consider harmful substances in food as harmful pollutants, which is one-sided view. Harmful pollutants generally refer to external harmful substances on the contamination of food, such as excessive pesticide residues, nitrate problem and pathogenic micro-organisms. In fact, some foods contain harmful substances such as alkaloids, toxic proteins and peptides. In addition, other allergic substances such as pollen, mites, seafood and certain nuts may also cause bodily health hazards to specific allergen groups, which should be regarded as harmful substances.

Evaluation table of food quality and safety

Degree of harm| Acute toxicity| Chronic toxicity|

High|Low| Microbial contamination| Mycotoxins|

| Algal toxin| Industrial pollutants|

| Some plant toxins| Some plant toxins|

| Mycotoxins| Unbalanced diet structure|

| Industrial pollutants| Algal toxin|

| Food Additives| Microbial contamination|

| Pesticide Residues| Food Additives|

| | Pesticide Residues|

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### 3. 2 Nutritional balance

The issue of nutritionally balanced diet is also an important part of the connotation of food safety. Many studies have shown that many human chronic diseases are related to nutritional imbalance, especially cardiovascular and hypertension diseases (Loureiro, 2007). In developed countries, excess nutrients rather than chemical pollution is the major problem in food safety. Unbalanced nutritional injection is regarded as long-term consumption or preference for a certain food. Accumulation and transformation of excess nutrients cause potential diseases. From the above table, it is shown that the harm caused by nutritional imbalance is much greater than that caused by pesticide residues. For example, long-term excessive intake of unsaturated fatty acids causes the easy formation of peroxides which is of certain carcinogenicity. Excessive intake of cholesterol, triglycerides is responsible for atherosclerosis.

### 3. 3 Sustainable supply

Manufacturers must provide safe food and undertake operations that secure food production for business profit and maintain customer's good nutrition. With the development of economy, the drawback of high-input intensive agriculture gradually appears. The sustainable supply of food is facing serious challenges from population, resources, environment and social crisis. Various environmental problems alert human beings frequently (Sweet, 2010). The stability of agro-ecological is declining and pesticide residues pose a threat to human health. Extensive use of fertilizers results in eutrophication of surface water bodies and nitrate content of groundwater

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exceeds. The study of Goodwin (2011) believes that because of agricultural subsidies, prices of some agricultural products increase. The farmers and manufactures produce a large number of subsidized “ program product”. Encouraging the use of large quantities of water, fertilizers and agricultural chemicals result in various negative external effects. This series of problems make people reflect this mode of food production.

### 3. The application of novel technology in food industry

#### 4. 4 The technology of supercritical fluid extraction

Supercritical fluid extraction technology is using the fluid in the supercritical state as a solvent. In the supercritical state, the fluid is of high permeability and high solubility, which can be used to extract and separate mixtures (Wan, 2009). Supercritical extraction technology is a considerable potential method for high-tech extraction in food industry. The application of this technology in food manufacturing can be for decaffeinating coffee beans, tobacco off the nicotine, dairy products off the cholesterol, extracting polyunsaturated fatty acids DHA, EPA from fish oil and food additives such as lecithin, wheat germ oil, tea oil, edible spices from natural plant.

#### 4. 5 Microwave Vacuum Drying Technology

This technology combines microwave drying and vacuum drying technologies to give full play their respective advantages. In a vacuum environment, the heat transfer of Water or solvent molecules is relatively easy, thus greatly reducing the drying time and improving production efficiency (Wan, 2009). The moisture content of vegetables and fruit is large,

so the freeze-drying cost is extremely high. Microwave vacuum drying has a large potential in the dehydration of vegetables and fruits. With the continuous improvement of microwave vacuum drying equipment and computer automatic controlling level, this technology will get a wider range of applications in food manufacturing.

#### 4. 6 Biotechnology in food packaging and storage

Microbial spoilage and oxidation are two important factors resulting in food spoilage (Wan, 2009). The removal of oxygen is a necessary mean of food preservation. Glucose oxidase plays specific role in antioxidant, which is an ideal deoxygenation method. The most significant feature of cell wall lytic enzyme is to eliminate the breeding of some microorganisms and to promote the breeding of the beneficial bacteria. The use of cell wall lytic enzyme as a preservative is of no poison, which can substitute the harmful chemical preservatives.

#### 4. The establishment of sustainable development system

#### 5. 7 Regulations and safety standards

Regulations and safety standards are necessary for product development in food industry. The food must be made safe by preservation and producing suing HACCP and GMP. The safety of foods relies on the risk business is willing to accept, so consumers can set the standards of food. Improving the quality control system of production, distribution, processing and marketing is important to ensure food safety. Regulators must know State and Territory Food Acts, Food standards code and Trade practices. Food standards code <https://assignbuster.com/food-safety-and-sustainable-development-essay-sample/>

includes labeling, permitted additives, residues and contaminants, microbial standard limits and food product standards. Food business must systematically examine operations, establish procedures, identify problems developing and retain records. The following diagram shows the related factors concerning the issue of food safety.

#### 5. 8 Improve market system of food manufacturing

The market system of food manufacturing includes market access, labeling, tracking and recalling. The implementation of market access system is to ensure a minimum of security of foods entering the market. Food labeling system is manifestation of consumers enjoying the right to know food ingredients and processing, which is particularly important for the food safety of children, pregnant women and the elderly. The food supply of many developed countries depends on imports. The origin, processors and vendors are not necessarily the same subject, so it is difficult to identify the causes of food safety accident.

#### 5. 9 Independent quality supervision and inspection

The current problem in food safety supervision and inspection is multilateral law enforcement, the defect of which is confused responsibility of different departments. The law enforcement is not enough, so the legitimate interests of consumers and food manufactures cannot be guaranteed. From the overall construction of food safety system, a professional and fair social group is needed to coordinate the interests of all parties. The social group

should have the functions of organizing food safety activities, coordination and being as the media of public opinion.

#### 5. 10 Positive media publicity and scientific consumption

Food safety event reports and the advertising of food consumption is becoming one of the main content of media, which plays an important role in consumers keeping abreast of food information and nutritional needs.

However, exaggerating the seriousness of food safety and nutrition of certain food for the news highlights mislead the consumers easily. In addition, diet habits of consumers also have potential impact on the full control of food safety.

#### 5. Conclusion

The food is the basis of human survival. Unsafe food will undoubtedly cause serious harm to people's physical and mental health. Generally speaking, the issue of food safety includes quality security, nutritional balance and sustainable supply. In order to establish sustainable development system in food industry, regulations and safety standards are necessary. The improvement of market system in food production including labeling, tracking and recalling help guarantee the safety of foods that have already entered the market. Meanwhile, the application of novel technology such as supercritical fluid extraction, microwave vacuum drying and biotechnology will promote the sustainable development of food production.

#### 6. References

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