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AZERBAIJAN AT A NEW STAGE OF DEVELOPMENT - FOOD AND FOOD SECURITY IN THE PERIOD OF GLOBALIZATION AND THE POST-PANDEMIC PERIOD: CONTEMPORARY SITUATION, CHALLENGES, PERSPECTIVES

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Summary. Recently, the safety of food products has become one of the most important hygienic problems, and after the collapse of the USSR, it became more relevant in the CIS space. Current problems in the field of food and food security both in the world and in the Republic of Azerbaijan are considered in the article, the work done and upcoming tasks are highlighted.

It is noted that the result of constant hunger of people is diseases, blindness, mental retardation in children, infertility, early mortality, etc. At the same time, among wealthy people in developed countries, regular overeating causes many serious diseases. The ecological situation, in turn, causes problems of production safety, prevention and medical nutrition. In modern industrially developed countries, the overwhelming majority of agricultural land is "enriched" with chemical preparations for agriculture, and finished products with their residues, medicinal preparations, chemical and food additives. This list includes social toxicants - alcoholic and energy drinks, drugs, tobacco and cigarette smoke, etc. Thus, it is not difficult to imagine the scale of the problem of contamination of food products.

Not only individual countries and their leaders, but also the Food and Agricultural Organization of the United Nations (FAO), WHO and other international organizations are seriously engaged in the issues of food security and food policy implementation. The relevance of the problem of safety of food products as the main factor determining human health and gene pool is increasing every year.

Azerbaijan is part of the global world. In modern times, it is impossible to ensure the country's food security gradually or individually. Azerbaijan is a state with an open and free economic system and global production relations. Of course, the economic processes taking place in the world do not bypass Azerbaijan and show their influence. Processes taking place in the context of the world food market play an important role in the formation of the structure of national production and market conditions. Therefore, the article analyzes the work done in this area.

Key words: globalization, food products, safety of food products, health, social toxicants, food additives

It is known that food is the most important form of human interaction with the environment. The safety of food raw materials and food products is one of the main factors determining the health of the population. According to the scientific research, international organizations have come to the conclusion that today the number of sick people on earth is greater than the number of completely healthy people. The main reasons for this are the devastating effects of the environment - air, water and soil pollution, low-quality and low nutritive value food, psychological stress, stressful lifestyle, etc. [1,2]. Food products play the biggest role in maintaining human health as people eat food several times a day. Alongside with it, the body receives substances that are dangerous to its health.

The WHO has found that food safety in any country is the provision of physical and economic access to food for the entire population and social groups of the country, the availability of sufficient food production to meet their needs, and the implementation of social policies that ensure subsistence minimum [1-4].

Food safety means that there is no danger to the human body in terms of both acute adverse effects (food poisoning and acute intestinal infections) and future hazards (carcinogenic and mutagenic effects). Recently, food safety has become one of the most important hygienic problems, and after the collapse of the USSR, it has become more relevant in the CIS. This is due to the fact that more food raw materials and food products (sometimes of questionable origin and quality) enter foreign consumer markets, their production technology, storage and sales conditions are changed, new chemicals are added to food, their quantity is increased, contaminated food and raw materials are more at risk as a result of unfavorable environmental conditions. Products that contain no toxic substances or minimal amounts allowed by sanitary norms, and have no mutagenic, carcinogenic or other adverse effects on the human body are considered safe for human health [1,2,4,5].

The safety of raw materials and food products is determined by the quantity and quality of chemical and biological substances, microorganisms and their products of vital activity. Pathogenic microorganisms in food, artificial and natural radionuclides, nitrates, nitrites and nitro compounds, pesticides, salts of heavy metals, as well as food additives such as preservatives and colourings, etc. is more dangerous for the human body. Food products have the ability to accumulate and concentrate dangerous amounts of environmentally harmful substances - contaminants from the environment.

Up to 70% of the toxins of various origins that enter the human body from the environment pass through plant and animal products. Compared to the 50s and 60s of the twentieth century, the amount of radionuclides in food has increased 5-20 times. Contamination of food products with nitrates and their decomposition products has increased up to 5 times in the last 5-10 years [1,6].

Based on the mentioned, it can be concluded that apart from taking a certain part in the ecosystem, people should pay serious attention to their nutritional ecology.

In more developed countries, the main problem of societies that experience abundance of food is the quality and safety of this food. However, in poor and underdeveloped third countries, the main problem is the minimum supply of people with basic foodstuffs [5,6].

The modern approach to the problem of nutrition ecology appeared in the 90s of the XX century, at the end of 1992 in Rome, Italy where an international conference dedicated to the ways of solutions to

full-valued food products problems for the population was held at the initiative of the World Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The importance of the conference stems from the fact that, while the world produces enough food per capita, currently around 800 million people worldwide suffer from chronic starvation every year, and about 2.0 billion is needed to ensure food security [5-9]. Consequences of constant starvation are diseases, blindness, intellectual disability in children, infertility, premature death, and so on. At the same time, in developed countries, overeating and regular satiety among the well-off people lead to many serious diseases. The ecological situation, in turn, leads to problems of food safety as well as the problems of preventive and curative nutrition [10-14].

These problems are the subject of scientific research on food ecology, food raw materials and food safety.

In parallel with the development of society, food legislation that defines the quality requirements for food products has emerged.

Thus, in 1994, the US Congress adopted laws and normative acts on "Education in the field of food and the information role of food packaging", "Healthy food for healthy Americans" and so on.

As a result of the development of chemistry, microbiology, biotechnology and food technology, many new food additives have been created, which in turn has led to conduct of research determining the effects of new food additives on the human body and development of international food legislation reinforcing food security requirements. At present, in developed Western countries, comprehensive legislation on the composition, properties and quality of food (Codex Alimentarius) is in force [1-5].

It is known that as human society develops, the participation and role of people in the processes of cultivation and processing of food raw materials and products increases significantly. In the last century, our food has undergone such a radical change that many people are now wondering: Can some modern food products be considered "food products" in general? Indeed, if fruits and vegetables are cultivated by using chemicals, and new economical technologies are used in the processing of meat, dairy and plant-based food products and if there are more carcinogenic chemical additives - artificial food dyes, flavorings and preservatives in most of the foods we find on store shelves, can they be considered harmless or beneficial to the human body? In many countries, unhealthy food is considered as a pandemic that causes obesity and the spread of serious diseases. Then the question arises, what happens to our diets? The answer to all these questions is closely related to the evolutionary laws of our culture. As human society develops, there are more creative opportunities to change the world around us. As we change ourselves, our attitudes change toward many traditional events, as well as products and methods of getting them.

Numerous discoveries and cultural reforms change the image of the planet we live on, and these changes are not always gratifying. Many innovations in food technology are really devastating. As we try to get more, better, and faster, we destroy the environment and put potential food reserves of the planet at risk. The use of high-tech and energy-intensive methods and chemicals in food production has a serious impact on the state of air, water and soil and rapidly changes the quality of food. There are four main factors of the deterioration of food products and the environment: the use of pesticides in

agriculture, the use of drugs in cattle breeding, new technologies and chemical food additives that accelerate the process of food production.

Chemical drugs are produced to increase soil fertility and protect crops from rodents, insects and fungi. Excessive use of these drugs leads to the destruction of vital soil microbes. The top layer of most soils cultivated in this way is scraped and turned into dust and blown away by the wind. The soil, water and air in these areas are polluted with chemical residues and have a strong impact on the nature.

Many years of research have shown that the number of cancer patients among agricultural workers is much higher than those living in normal conditions. At the same time, it was found that pesticide residues in food grains accelerate the spread of cancer and other destructive diseases among other categories of the population. At the same time, it was found that excessive use of chemicals does not lead to higher soil fertility and productivity compared to the use of organic fertilizers.

At present, the basis of the world's chemical agricultural industry is the use of drugs in cattle-breeding. Instead of being kept in the wild, most farm animals are raised by use of antibiotics and anabolic steroids - growth hormones. Naturally, the residue of these drugs is accumulated in the meat of animals. Mass use of antibiotics has led to the emergence of new strains of bacteria resistant to antibacterial drugs. At present, these bacteria are the major cause of mass food poisoning and other health hazards. In modern times, the import of meat products produced using growth hormones has been banned in the European Union and many other nations.

Modern technology of food production differs significantly from the past technologies. New technologies aimed at producing products that are more attractive in appearance, more convenient and affordable for storage and circulation, and cost less, are also created in order to get more revenue. Meantime, food products that seem normal at first glance have a completely new chemical composition, as well as a completely different structure and nutritional value. Refining of oils and other products with the use of high temperatures and chemical solvents, accelerated cleaning of grain and other new technological methods and processes significantly change the structure, composition and nutritional properties of food products. It is quite natural and expected that new technologies and research laboratories have enriched our lives with chemical food additives. These additives include preservatives, artificial dyes, flavorings, emulsifiers, oils, flavor enhancers, sugar substitutes, etc. Estimates have shown that the average American child receives more than 3.4 kg of food additives which have no nutritional value by the age of 5. The majority of these additives are artificially synthesized and remain outside the normal food chain, and their absorption may be accompanied by undesirable effects.

Thus, in industrialized countries, the vast majority of arable land is "enriched" with chemicals for agriculture, finished goods with their residues, ВКРПЫ and chemical food additives. If we add to this list toxicants such as - alcohol and energy drinks, drugs, tobacco and cigarette smoke, etc., it is not difficult to imagine the scale of food pollution problems. At the same time, the ecological situation intensifies the problem of contamination of food raw materials and products by xenobiotics of chemical and biological origin. Another problem is related to pollutants and harmful substances that enter the body as a result of ingestion of food additives - sweeteners, fragrances, dyes, stabilizers, etc., as well as other toxicants -

alcohol and energy drinks, drugs, cigarettes and tobacco smoke. Contamination of food products with fusariotoxins such as deoxynivalenol and zearalenone as a result of the spread of grain fusarium wilt is also a problem. Although counterfeiting food products and deceiving consumers are common to all food products groups, the most dangerous to human health is the counterfeit alcohol. Vodka, cognac, various types of dark drinks are increasingly counterfeited, food alcohol is replaced by hydrolyzed alcohol, natural extracts, dyes, fragrances and other beneficial additives are replaced by synthetic products that are dangerous to the human body. If you add to this list the problems caused by conflicts, genetically modified foods and nanotechnology, the picture becomes clearer [15-18] .

As mentioned above , human health depends not only on genetic and hereditary traits and lifestyle, but also on the products we choose and consume.

According to the WHO, today 60% of worldwide deaths are related to changes in the global diet, mostly due to fatty, salty and sweet foods produced on an industrial scale. In the poorest parts of modern megacities, in addition to malnutrition, diseases caused by unhealthy diets and unhealthy habits (obesity, allergies, digestive cancer, avitaminosis and hypovitaminosis, cardiovascular diseases, etc.) are more common.

Everyone suffers from various pathological food diseases throughout their lives. These include diseases that emerge immediately after poor nutrition, as well as after 10-15 years [1]. It is known that poor quality food is a crucial issue all over the globe. Thus, according to the research of American scientists, 33.0 mln. people get sick and 9.0 thousand of them die because of poor quality food intake. 1992-2001 study of the causes of food poisoning showed that the list of foods was largely stable. The main place for the production of low-quality food products is people's places of residence, the second place is catering establishments (canteens, cafes, restaurants, kindergartens and school food blocks, etc.), and the third place is food industry enterprises [4-6].

According to Russian scientists and experts, up to 30% of animal fats and canned fish sold in the country's markets, 35% of dairy products and 40% of meat products have been counterfeited.

In 2002, the Swedish National Bureau of Food and Drug Administration together with scientists at the University of Stockholm, conducted research on more than 100 catering establishments, including McDonald's, and found that in the processes of heat treatment of highcarbohydrate foods and dry porridge, high-density acrylamide (AA) arises. The carcinogenic and mutagenic effects of these substances have only been confirmed during experiments on animals. AA also damages the nervous system and causes infertility. The amount of this substance in potato chips is 500 times higher than the permissible amount set by the WHO for water. Canadian scientists have discovered a new chemical reaction that leads to the formation of AA during food products preparation. Foreign scientists have come to the conclusion that there is AA in almost all starchy products (potatoes, corn, cereals, flour products, etc.) Potato chips, fries, pies, cakes, bread, roasted coffee, toast and cornflakes (corn on the cob) are among the most dangerous products. All products rich in AA are processed at high temperatures (120⁰C). AA which arises during frying, baking, grilling and deep frying, is practically not found during water cooking(steam) [1] .

Without questioning the role of the state in food security, it should be noted that people's health depends more on themselves. One of the most important environmental issues today is food

quality and security. Ensuring the health of the country's population is one of the main concerns of the state and should always be in the focus of the country's leadership. Food determines the most important physiological processes in the human body and plays the role of a plastic material and a source of energy for the formation and renewal of tissues and cells of the body. Therefore, food is one of the most important factors that ensures the health, ability to work and creative potential of the population.

Not only the leaders of the countries, but also the Food and Agriculture Organization of the United Nations (FAO), the WHO and other international organizations seriously deal with ensuring food security and implementing food policy. The urgency of the problem of food security as a key factor determining human health and gene pool is growing every year. In some countries, the development of programs in the field of healthy food began in recent times - 15-20 years ago. These programs are based more on epidemiological data and modern concepts of health promotion. These concepts substantiate that nutrition is one of the main factors that actively affect human health and mortality.

As a result, Food and Agriculture Organization of United Nations and WHO annually prepare a report on global nutrition and food security and hold a World Food Safety Day. This year's event was held on June 7, 2021.

It is the result of the above that UN Food and WHO prepares a report on Food and food safety in the world every year and holds Food and food safety day. This year such a day was held on June 7, 2023.

In this year's report, the United Nations states that global starvation worsens significantly in 2020, most likely due to the COVID-19 pandemic. The impact of the pandemic has not yet been accurately assessed, but according to a report of several UN agencies, the number of undernourished people reached 811 million last year and it means one-tenth of the world's population. Based on this figure, fulfilling the commitment of the international community to end the starvation by 2030 will require incredible effort. In this year's report, the State of World Food Security and Nutrition presented such a global assessment for the first time since the beginning of the pandemic. The report has been jointly published by the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the United Nations Children's Fund (UNICEF), the United Nations World Food Programme (WFP) and the World Health Organization (WHO) [5-9].

In previous reports, these organizations have repeatedly warned the world community that it poses a threat to the food security of millions of people, including children. It is said in the foreword to the 2021 report by five UN agencies: "Unfortunately, the pandemic continues to reveal vulnerabilities in our food systems that threaten the lives and healths of people around the world" [2].

Figures and facts:

As early as the mid-2010s, hopes that the results of the fight against hunger would be irreversible collapsed, and the number of hungry people began to grow slowly. The results of 2020 are appalling, the number of hungry people increased significantly, both in absolute and relative terms: if in 2019 8.4% of the world's population suffered from malnutrition, by the end of 2020 the number of malnourished people rose to 9.9%.

More than half of the undernourished (418 million) live in Asia, more than one third of them (282 million) in Africa, and a small proportion of them (60 million) in Latin America and the Caribbean. The sharpest increase in hunger occurred in Africa, where the prevalence of malnutrition reached 21 percent, which more than doubled in comparison with other regions.

Other statistics calculated for the end of 2020 are also unsatisfactory. More than 2.3 billion people - 30 percent of the world's population - have not had enough food throughout the year: the annual increase in the prevalence of moderate and severe food security has been almost the same as in the previous five years. Gender inequality has worsened: in 2020, for every 10 men facing food insecurity, there are 11 women in the same situation (it was 10.6 in 2019).

Information on all types of diets continued to be reported, with children hitting the hardest, with 149 million children under 5 years of age underweight by 2020, over 45 million children weighing less than their peers and about 39 million children being overweight. Three billion adults and children have been deprived of opportunity to eat healthy food, because it is expensive. About a third of women of childbearing age suffer from anemia [5,6]. According to the World Food and Health Organization, one in ten people in the world - about 600 million people - get sick from contaminated food, and 420,000 people die each year. More than 40% of foodborne illnesses occur in children and 125,000 of them die each year.

Foodborne illnesses can be contagious or toxic in nature and can be caused by bacteria, viruses or chemicals that enter the body through contaminated food or water. Foodborne illnesses hinder socio-economic development, create additional problems for the health care system, and cause great damage to the national economy, tourism and trade. Recent estimates show that low- and middle-income countries lose about \$ 95 billion a year as a result of declining labor productivity due to food insecurity.

In any country, food security is important not only for strengthening the health of the population and ensuring food safety, but also for livelihood, economic development, trade and international prestige.

Each year, about 700,000 people worldwide die from antimicrobial-resistant infections. More comprehensive information is needed to understand the broader consequences of food safety violations. Awareness of food safety helps consumers make conscious and healthy choices and increases ensuring the food security.

It appears that some of the goals set by the global Food Security and Nutrition , including 2nd Goal of Sustainable Development (eradication of hunger by 2030), will not be fulfilled: about 660 million people will still be deprived of proper nutrition, 30 million of them will not be able to cope with hunger due to the long-term effects of the pandemic.

At the same time, the facts mentioned in Document [3] of FAO and WHO on holding the International Day of Food Safety in 2023 are of particular interest:

- Every tenth person in the world gets sick every year after consuming contaminated or contaminated food. These diseases cover all countries;
- consumption of food products contaminated with chemical substances, such as bacteria, viruses, parasites or heavy metals, causes more than 200 diseases;

- Although children under 5 years make up 9 percent of the population, they account for 40 percent of food-related diseases;

- safety standards of food products protect the life of all and the means of existence of many. They determine the criteria that food products must meet in order to protect consumers and strengthen trust in the product;

- The Codex Alimentarius Commission defines international standards for food products for 60 years;

- Commission on Codex Alimentarius until February 2023. developed 236 standards, 84 guidelines, 56 codes of norms and rules, 126 maximum levels of contamination of food products, more than 10,000 quality criteria that determine the maximum permissible limits for food additives, maximum levels of residues of pesticides and veterinary drugs;

- microorganisms resistant to antimicrobial preparations can be transmitted through the food chain, during direct human contact with animals or through the environment. According to estimates, annually about 5 million people worldwide die because of microorganisms resistant to antimicrobial preparations;

- microbiological, chemical and physical contamination of food products can be reduced or reduced to a minimum by applying food safety standards;

- Since 2016, the Codex Trust Fund, a joint program of FAO and WHO, has supported 50 countries with developing economies or economies in transition in strengthening their institutional capacity for more effective participation in the work of the Codex;

- the safe and high nutritional value of products promotes the growth and development of children, increasing their intellectual and physical potential, school success and labor productivity in old age;

- the safety of food products depends on the health of animals, plants and the environment in which food products are produced. Adoption of the "Single Health" approach to food safety will allow to create a more effective food safety system;

- food security contributes to the achievement of several Sustainable Development Goals and is a truly interdisciplinary topic.

Azerbaijan is part of a globalizing world. In modern times, it is impossible to ensure the country's food security in an isolated or individual way. Azerbaijan is a country with an open and free economic system and globalized production relations. Naturally, the economic processes taking place in the world affect Azerbaijan. The processes taking place in the conjuncture of the world food market play an important role in the formation of the structure of national productions and market conjuncture.

Regardless of time, place, socio-political structure and system of governance, one of the most important tasks facing any state has been the reliable provision of the population with safe food. This issue has not lost its relevance for the modern era, on the contrary, it has become more serious. Probably, among the numerous tasks facing almost any nation, the issue of reliable provision of the country's population with safe food products is very important. Knowing this very well, the great statesman, national leader Heydar Aliyev always focused on the issue of food security of the country during his presidency in Azerbaijan and included food security in

the main elements of his statehood strategy, taking into consideration the importance and relevance of this issue for future generations.

The worthy successor of the national leader, President of the Republic of Azerbaijan Ilham Aliyev also pays constant attention to the issue of reliable food supply of the country's population as a key component of his economic strategy and implements special state measures in this direction. The first (2003-2008) and second (2009-2013) State Programmes on socioeconomic development of the regions of the Republic of Azerbaijan created conditions to succeed in this field. In addition, the “State Programme on Reliable Food Supply in the Republic of Azerbaijan for 2008-2015” approved by the Decree of the President dated August 25, 2008 has been successfully implemented and has played an exceptional role in ensuring food security in the country. The State Programme on Socio-Economic Development of the Regions of the Republic of Azerbaijan for 2019-2023, approved by the Decree of the President of the Republic of Azerbaijan dated January 29, 2019, is being successfully implemented and the current statistics prove it visually.

Recent environmental and climatic changes, the acceleration of erosion of agricultural land and water resources, as well as the growth rate of the world's population have led to serious challenges in meeting global demand for food. The sharp disparity between the growth rate of demand for food and the available production resources causes a number of problems in the food supply of the growing world population. According to the latest data, the world's population now exceeds 6.7 billion, and by 2050 their number will reach 9.7 billion. Of course, the growth rate of the population in itself determines the growth rate of demand for food, on the other hand, this demand is qualitatively improving, changing and renewing every year. In such conditions, the harmonization of the growth dynamics of production with the growth dynamics of demand, synchronization of supply and demand is one of the most urgent problems of the modern world. For this reason, in order to increase productivity in food production, scientific research is regularly conducted, new techniques and technologies are applied in agriculture, innovations in the field of production are introduced as the main tool to solve the problem. The use of genetic engineering and genetically modified microorganisms, various chemicals, food additives, substitutes, etc. is currently widespread. Obviously, these means and scientific and technical advances play an important role in increasing production, but sometimes they cause certain threats to food safety when not used properly. In addition, the growth rate of demand creates conditions for the presence of low-quality food products in the consumer market that can pose a threat to human health. The inadequacy of quality and food safety management systems to the existing challenges, the lack of knowledge and information in the field of food security make it necessary to pay more attention to this component of agricultural policy. This issue is especially acute in developing countries and nations where economic and political systems are being transformed.

Azerbaijan integrates into the European Union and the developed world. It should be noted that significant progress has been made in this direction and a great deal of work is being done. A lot of work has been done to adjust the legislative and legal-regulatory framework of the Republic to the legislation of the European Union, to modernize sanitary and phytosanitary measures. Modernization of food quality and food safety management systems in Azerbaijan is also very significant and is one of

those measures. One of the main tasks is to provide the population with healthy and safe food products, to adjust security management systems and control mechanisms to the international standards in order to prevent the entry of harmful and low-quality food products into the consumer market of Azerbaijan.

Current situation in the field of food safety in Azerbaijan. Consistent and purposeful reforms implemented in the direction of developing the food security system in the Republic of Azerbaijan have created great opportunities for improving the existing normative legal acts as well as material and technical base, and getting significant achievements. In connection with food supply in the country, the “Food Security Programme of the Republic of Azerbaijan covering the years 2001–2010” by the Order of the President of the Republic of Azerbaijan No. 640 dated March 2, 2001, and “State Program on reliable food supply of the population in the Republic of Azerbaijan in 2008-2015” by the Order No.3004 dated August 25, 2008, “Strategic Roadmap for the Production and Processing of Agricultural Products in the Republic of Azerbaijan” approved by the decree No. 1138 dated December 6, 2016, as well as special programs, concepts and other documents as a continuation of these reforms have been adopted so far.

In order to improve the food safety management system in the country, to increase transparency in this area, to eliminate retail and duplication, as well as to ensure the implementation of the relevant measures given in the "Strategic Roadmap for the production and processing of agricultural products in the Republic of Azerbaijan" approved by the Decree of the President No. 1138 dated December 6, 2016, the Food Safety Agency of the Republic of Azerbaijan was established by the Decree of the President of the Republic of Azerbaijan No. 1235 dated February 10, 2017. The Statute and Structure of the Food Safety Agency were approved by the Decree of the President of the Republic of Azerbaijan No. 1681 dated November 13, 2017 “On ensuring the activities of the Food Safety Agency of the Republic of Azerbaijan” and the Azerbaijan Food Safety Institute with the status of a public legal entity was established under the responsibility of the Agency.

As a continuation of the reforms in the field of food safety, a number of changes have been made by the Decree of the President of the Republic of Azerbaijan No. 28 dated May 1, 2018 in the Statute of the Food Safety Agency to allow centralized control of all stages of the food chain. Within the framework of these reforms, the existing normative legal basis in the field of food security has been improved.

The main activities of the Institute of Food Safety whose charter and structure are approved by the Resolution No. 220 of the Cabinet of Ministers of the Republic of Azerbaijan dated May 16, 2018 include conduct of scientific and practical research in the field of food security, risk assessment based on scientific principles, preparation of drafts of technical regulations in the field of food safety, provision of laboratory analysis, expertise and research services on food safety and minimum quality indicators, informing and educating the population on this issue. In addition, in accordance with the reforms in the field of food safety control, the existing material and technical bases and laboratories of the relevant government agencies have been transferred to the balance of the Food Safety Agency.

The work done by the State Agency for Food Safety and its agencies in recent years and the positive results achieved are known not only to experts but also to the general public.

Although great work has been done in the Republic of Azerbaijan to ensure food security and reinforce control over the food products and food raw materials, the issue of ensuring food security is very important. It can be seen even in the following example. According to the State Statistics Committee, in 2010-2014, 3817 people died of endocrine system diseases and nutrition, metabolic diseases, i.e. on an average 954 people per year, and in 2015-2019, 7427 people died from these diseases, i.e. on an average 1485 people per year. According to statistics, in 2015-2019 compared to 2010-2014, deaths from these diseases increased on an average 1.5 times per year.

Therefore, monitoring the safety of products, studying the negative effects of small amounts of foreign substances on human health remains an important scientific and practical problem of hygiene.

Before talking about modern management systems in the field of food security, it is worth clarifying several other factors that are often misunderstood or confused with food safety. These are the criteria of food security and food quality. In many cases, the concepts of food security and food quality are confused or equated with nutrition safety. They make sure that these terms have the same meaning and try to use them as synonyms. However, they are completely different and have different meanings.

Food security means the availability of food for the consumer, i.e. the physical availability of food in the consumer market and the ability to buy and obtain that food to meet the needs of the consumer. That is, food security is characterized by the combination of the amount of food in the consumer market and the purchasing ability of the consumer. Food quality is characterized by the value of food to the consumer. Food quality has positive attributes such as the type of food raw material, production technology, taste, color, structure, as well as negative attributes such as spoilage, soil contamination, change in color, smell, taste, etc. Nutrition safety means that any food product does not contain biological, chemical and physical hazards that are harmful to human health and is not a source of danger to human, animal and environmental health. Food safety is the exclusion of the possibility that hazardous factors that may cause health complications may remain in the food, occur later, or be later incorporated into the food.

The level of danger of a hazardous food product is measured by the remaining hazardous factors. As mentioned above, the risk factor is divided into three groups - biological, chemical and physical. The group of biologically dangerous factors includes infectious bacteria, toxinsecreting organisms, parasites, viruses, etc. microorganisms; the group of chemically dangerous factors includes naturally occurring toxins, food additives, pesticide residues, veterinary residues, environmental pollutants, allergens, etc.; the group of physically dangerous factors includes metal scrap, glass scrap, jewelry belonging to workers and most likely to fall into food products during production processes, stone scrap, bone scrap, etc. Risky factors can arise in any food product at any stage before the product reaches the consumer. At any stage of production and storage of raw materials, transportation, processing and packaging of raw materials, storage and transportation of finished products, storage of products in commercial and catering facilities, it is possible to come across such dangerous factors in food products. Therefore, in order to ensure reliable food safety, a management system should be chosen that covers all stages of the

product. It means that the food safety management mechanism must cover all stages from the production of food to its delivery to the consumer and operate as a single system. If the appropriate monitoring system is not implemented at any of these stages, it will be impossible to ensure the effectiveness of the overall system. Experience shows that as a result of the implementation of measures to combat unsafe food only in consumer markets the measures taken to ensure the safety of finished products that have already entered the consumer market have not been very effective and have not proved itself as a food safety management mechanism. Reliable food safety requires a comprehensive approach and makes it necessary to establish and implement food safety management mechanisms that ensure product safety at all stages of the food production chain rather than controlling the finished product in the consumer market. Now I think it is expedient to give information about the work done at Lankaran State University in this field.

It is known that the solution of these problems also depends on the quality of professional training of specialists working in this field. As we know, Lankaran State University is responsible for training highly qualified personnel to ensure food and nutrition security in the region. It is no exaggeration to say that Lankaran State University copes with this task with dignity. The fact that this International Conference is being held at our University today is a clear proof of this.

At the same time, in order to improve the quality of training in specialties of veterinary, food engineering, tourism and hospitality, agrochemistry and soil science, agronomy, forestry, ecology, etc. taught at the University after 2015 and to strengthen the material and technical and educational base, the laboratories of "Veterinary", "Food Technology" and "Food Safety and Ecology" provided with modern equipment were established. These laboratories are provided with equipment and devices such as modern chromatograph, homogenizer, centrifuge, pH-meter, ionometer, spectrophotometer, colorimeter, refractometer, electron microscopes, refrigerators, freezers, dryers, suction cupboards, etc. that bought from England, Russia, China and others. Most of these equipments and devices work by connecting to a computer and the Internet, which ensures the accuracy and precision of the results obtained. In addition to the chemical composition of food, the structure of tissues and cells of plant and animal origin, changes in them under the influence of the environment, the amount of food additives and harmful compounds, substances and elements in raw materials and food products, etc. are researched or planned. In addition, the "Soil Science" laboratory has been purchased and its installation will be completed in the coming days. One of the interesting aspects is the determination of the amount of metals (including heavy metals) in food raw materials and food products, water, soil, etc. The voltammetric TAEkolab analyzer manufactured by the "Technoanalit" Science and Production Center of the Russian Federation (Tomsk) is a reliable tool for this research. For the first time in the Republic of Azerbaijan, this device is used by doctoral students, lecturers and students at the "Food Safety and Ecology" laboratory of the University. Currently, 2 persons carry out research work on the program of doctors of sciences (including 1 person within the program of cooperation with UNEC) and 3 persons on PhD program in this laboratory and it will help to strengthen the staff potential of the University in the future. Another important point in the teaching process is the availability of teaching aids. Under the direct leadership and participation of Mikayil Maharramov, professor of the university, doctor of technical sciences, a manual of "Safety of raw

materials and food products" and a laboratory practicum (textbook) were prepared together with the staff of the Azerbaijan State University of Economics, printed by UNEC and distributed to students and teachers.

Work done in the agricultural sector:

In order to put into practice the theoretical knowledge of students studying in the agricultural field, a teaching practical area of about 3 hectares was created in the territory of the educational building No. 1 of the university and in addition to the typical crops of the region (tea, tangerine, orange, lemon, kiwi), vegetables, melons and grains are also planted here. In the current academic year, garlic, onion, cabbage, autumn wheat, autumnal barley, autumnal rapeseed, autumnal clover, autumnal peas were planted in the practical area with the participation of students. The theoretical knowledge gained by students is visually demonstrated in the practical area. All these measures will further increase the level of training of qualified personnel in the field of agriculture at our university. Certain measures are being taken at the university in order to strengthen cooperation between agricultural producers and processing enterprises. Cooperation agreements have been signed with Agrarian Science Center, the department of Azerbaijan National Academy of Sciences, scientific departments of various scientific research institutes in the region, farms, various processing enterprises - tea factories, bakeries, milk processing plant, vegetable canning plant. Students' internships are held in these institutions.

From 2021-2022 academic year, for the first time, the University has started training in the master's program "Food Security" and in the bachelor's program "Winemaking". We believe that the success of the staff of Lankaran State University in the field of food security will continue and will make a worthy contribution to the fulfillment of the tasks set by President Ilham Aliyev to the Food Safety Agency and educational institutions of the Republic of Azerbaijan.

Conclusions. As noted in last year's report of UN, food systems need to be changed to ensure food security, improve nutrition and make healthy food accessible to all. Six key areas for change have been described in this year's report. According to the report, these areas of focus have been identified by a "combination of policies and investments" to combat the causes of hunger and malnutrition.

Given the nature of the individual factors (or a combination of several factors) present in the countries, in the report the governing bodies are called:

- To ensure the integration of humanitarian, developmental and peace-building measures, in particular social protection measures in order to prevent families in conflict-affected areas from selling their meager assets to buy food;
- To expand efforts to increase resilience to climate change in all areas of the food system, including providing small farm owners with greater access to climate risk insurance and financially supporting them in cases of adverse weather conditions;
- To use financial and non-financial support programmes to reinforce the economic resilience of the most vulnerable people to reduce the negative external effects on the economy such as those of pandemics and price instability in food products;
- To take measures to reduce the cost of food products in all parts of the food supply chain, such as promoting the cultivation of biological products or facilitating market access for fruit and vegetable producers;

- To eliminate poverty and structural inequality, such as building chains of food production and sale in poor communities through certified programmes and technologies;
- To strengthen the food environment and change consumer behavior, for example, to completely eliminate industrial trans fats, reduce sugar and salt in foods, and protect children from the negative effects of food advertising.

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AZƏRBAYCAN YENİ İNKİŞAF MƏRHƏLƏSİNDƏ - QLOBALLAŞMA VƏ POSTPANDEMİYA DÖVRÜNDƏ ƏRZAQ VƏ QIDA TƏHLÜKƏSİZLİYİ: MÜASİR VƏZİYYƏT, ÇAĞIRIŞLAR, PERSPEKTİVLƏR

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Xülasə

Son dövrlər qida məhsullarının təhlükəsizliyi ən mühüm gigiyenik problemlərdən biri olub, SSRİ-nin süqutundan sonra MDB məkanında daha çox aktuallıq kəsb etmişdir. Məqalədə həm global məkanda, həm də Azərbaycan Respublikasında ərzaq və qida təhlükəsizliyi sahəsində mövcud problemlərə, görülən işlərə nəzər salınır, qarşıda duran vəzifələr işıqlandırılır.

Qeyd edilir ki, insanların daim aclığının nəticəsi- xəstəliklər, korluq, uşaqlarda əqli çatışmazlıq, sonsuzluq, erkən ölüm və s.-dir. Eyni zamanda inkişaf etmiş ölkələrdə təmin olunmuş insanlar arasında artıqlaması ilə qidalanma və müntəzəm toxluq bir çox ciddi xəstəliklərin yaranmasına səbəb olur.

Ekoloji vəziyyət, öz növbəsində məhsulların təhlükəsizliyi, profilaktiki və müalicə qidalanması problemlərinə səbəb olur. Müasir zamanda sənaye cəhətdən inkişaf etmiş ölkələrdə əkin sahələrinin böyük əksəriyyəti kənd təsərrüfatı üçün kimyəvi preparatlarla, hazır məhsullar isə onların qalıqları ilə, dərman preparatları və kimyəvi qida əlavələri ilə "zənginləşdirilmişdir". Bu sıraya sosial toksikantları-alkoqollu və energetik içkiləri, narkotikləri, tütün və siqaret tüstüsünü və s. əlavə etsək qida məhsullarının çirklənmə problemlərinin miqyasını təsəvvür etmək çətin deyildir.

Qida məhsullarının təhlükəsizliyinin təmin edilməsi və ərzaq siyasətinin həyata keçirilməsi məsələləri ilə tək-cə ayrı-ayrı ölkələr və onların rəhbərliyi deyil, eyni zamanda BMT-nin Ərzaq və Kənd Təsərrüfatı təşkilatı (FAO), ÜST və bu kimi digər beynəlxalq təşkilatlar da ciddi məşğul olur. İnsanların sağlamlığını və genefondunu müəyyən edən əsas faktor kimi qida təhlükəsizliyi probleminin aktuallığı ildən ilə artır.

Azərbaycan qloballaşan dünyanın bir hissəsidir. Müasir dövrdə tədric olunmuş halda və ya fərdi qaydada ölkənin ərzaq təhlükəsizliyini təmin etmək qeyri-mümkündür. Azərbaycan açıq və sərbəst iqtisadi sistemə, qloballaşan istehsal münasibətlərinə malik bir dövlətdir. Dünyada baş verən iqtisadi proseslər təbii ki, Azərbaycandan yan ötmür və öz təsirini göstərir. Ümumdünya ərzaq bazarının konyukturasında baş verən proseslər milli istehsalların strukturunun və bazar konyukturasının formalaşmasında mühüm rol oynayır. Ona görə də məqalədə bu sahədə görülən işlər təhlil edilir.

Açar sözlər: qloballaşma, ərzaq, qida təhlükəsizliyi, sağlamlıq, sosial toksikantlar, qida əlavələri

АЗЕРБАЙДЖАН НА НОВОМ ЭТАПЕ РАЗВИТИЯ - ПРОДОВОЛЬСТВЕННАЯ И ПРОДОВОЛЬСТВЕННАЯ БЕЗОПАСНОСТЬ В ПЕРИОД ГЛОБАЛИЗАЦИИ И ПОСТПАНДЕМИЧЕСКИЙ ПЕРИОД: СОВРЕМЕННАЯ СИТУАЦИЯ, ВЫЗОВЫ, ПЕРСПЕКТИВЫ

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Резюме

В последнее время безопасность пищевых продуктов стала одной из важнейших гигиенических проблем, а после распада СССР она стала более актуальной на пространстве СНГ. В статье рассмотрены текущие проблемы в сфере продовольственной и пищевой безопасности как в мире, так и в Азербайджанской Республике, освещены проделанная работа и предстоящие задачи.

Отмечается, что результатом постоянного голода людей являются болезни, слепота, умственная отсталость у детей, бесплодие, ранняя смертность и т.д. В то же время среди обеспеченных людей в развитых странах регулярное переизбыточное питание становятся причиной многих серьезных заболеваний. Экологическая ситуация, в свою очередь, вызывает проблемы

безопасности продукции, профилактики и лечебного питания. В современных промышленно развитых странах подавляющее большинство сельскохозяйственных угодий «обогащено» химическими препаратами для сельского хозяйства, а готовая продукция — их остатками, лекарственными препаратами, химическими и пищевыми добавками. В этот ряд входят социальные токсиканты – алкогольные и энергетические напитки, наркотики, табачный и сигаретный дым и др. Таким образом, нетрудно представить масштабы проблем загрязнения пищевых продуктов.

Вопросами обеспечения безопасности пищевых продуктов и реализации продовольственной политики серьезно занимаются не только отдельные страны и их руководство, но и Продовольственная и сельскохозяйственная организация Объединенных Наций (ФАО), ВОЗ и другие международные организации. Актуальность проблемы безопасности пищевых продуктов как основного фактора, определяющего здоровье и генофонд человека, возрастает с каждым годом.

Азербайджан является частью глобального мира. В современное время невозможно обеспечить продовольственную безопасность страны постепенно или в индивидуальном порядке. Азербайджан – государство с открытой и свободной экономической системой и глобальными производственными отношениями. Конечно, экономические процессы, происходящие в мире, не обходят стороной Азербайджан и проявляют свое влияние. Процессы, происходящие в конъюнктуре мирового продовольственного рынка, играют важную роль в формировании структуры национальных производств и рыночной конъюнктуры. Поэтому в статье анализируется работа, проделанная в этой области.

Ключевые слова: глобализация, продукты питания, безопасность пищевых продуктов, здоровье, социальные токсиканты, пищевые добавки