

## THE IMPORTANCE OF SOIL FACTORS IN HUMAN HEALTH

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**Annotation:** Over the last 10 years, the agrolandscape has been polluted with various harmful substances due to anthropogenic factors. These include man-made radionuclides (cesium - 137, strontium - 90), heavy metals (mercury, lead, cadmium, fluorine, chromium, beryllium, aluminum, arsenic, etc.), as well as residual pesticides. These harmful substances are absorbed by plants and accumulate in vegetables. When food is fed disproportionately with mineral fertilizers and in the process of protein synthesis, unfavorable conditions occur, resulting in the formation of toxic amino acids, nitrates and nitrites, which are among the harmful substances. Toxic contaminants in products must be controlled by health authorities. The allowable saturation level is determined for each crop, and when their amount increases, the product cannot be consumed. Gastrointestinal and many other diseases can develop if the composition of food does not meet sanitary and hygienic requirements. As a result of the development of agro-industry, as a result of excessive and irregular application of nitrogen fertilizers, the amount of nitrate in fruits and vegetables is increasing. The effects of nitrates on the body have been identified and it has been found that nitrates consumed on a daily basis are important in maintaining our health.

**Keywords:** food safety, organic products, nitrates, nitrites, food poisoning, mineral fertilizers, pesticides, healthy eating, soil.

The main part. Every year, more than 420,000 people worldwide die from poor quality food, and about 600 million people are diagnosed with health problems after consuming food that does not meet the requirements of sanitary-hygienic standards. Also, food-related risks include more than 200 acute and chronic gastrointestinal diseases leading to the development of cancer.

The quality and safety of food is one of the most important issues in ensuring the health of the population. Specific aspects of food safety include the risks associated with every sector of the chain, from food production to their processing and service. FAO is an international organization that oversees all aspects of the food chain and thereby implements a single overall vision of food security. This is facilitated by cooperation with the World Health Organization (WHO). Through their additional mandates, the FAO and WHO address a range of issues related to global food security and consumer health.

At the same time, 80-90% of the population of any country deviates from the norm in terms of health. One of the important reasons for this is the resulting feeding system. All age groups of the population are deficient in many vitamins, mineral salts, antioxidants and other biologically active substances. It is therefore important to consume products rich in these valuable substances. In many countries, taking into account the fact that the health of the nation depends on the quality of food and the products consumed, the Program and Concepts of public policy in the field of healthy eating have been developed. These programs pay special attention to the consumption of vegetables. The level of consumption of organic products often determines the working capacity and life expectancy of the population. Therefore, it is important to popularize knowledge about healthy eating and ways to prevent the cultivation of products that are dangerous to human health.

Today, healthy eating depends on environmental factors, and while food is grown mainly in soil conditions, our health remains dependent on the condition of the soil. The efficiency of the use of chemicals does not meet the requirements of environmental protection and agriculture at all. When mineral fertilizers and pesticides are applied to the soil in excess, most of them are absorbed by plants, but the rest of them accumulate in the soil in a form that plants cannot absorb. For example, when 240-250 kg of nitrogen is applied to 1 hectare of cotton, the plant uses only 30-40% of it, and when 120-130 kg of phosphorus is applied, it uses 15-20%. The rest accumulates in the soil as nitrate and phosphate salts. They slowly dissolve under the influence of water, add to groundwater and contaminate them. Nitrogen in the form of nitrate in water is harmful if the amount is 40-50

mg / l. Nitrate has been observed to reach and accumulate in the deeper layers of the soil (up to 12 m) with water. According to the data, nitrate accumulation of 900-1200 kg / kg was detected at a depth of 15 m per 1 hectare of cotton field. When phosphorus fertilizers are applied to the soil, they not only accumulate as phosphate salts, but also lead to the accumulation of "heavy metals". When 1 ton of superphosphate was applied to the soil, 20 mg / copper, 100 mg / zinc, 300 mg / arsenic accumulated in 1 kg of soil. Pesticides accumulate in the soil for several years without decomposing. 80-100% of pesticides sprayed in the first year will be retained for subsequent years, and they can only be spread depending on the depth and sides of the soil. For example, when DDT is sprayed, after 2-3 years, 80%, aldrin 43%, hexachlorate 20% are retained in a 15 cm layer of soil. Over the years, as a result of improper use of chemicals, the soil becomes saturated with toxins, which spread from the soil through the plant's roots to all its organs and poison the plant. Toxic chemicals have a negative effect on plants and all other living organisms. Toxic chemicals are present in soil, water and plants, pass through plants and plant products to farm animals, and accumulate in the human body through plant and animal products. As a result, various diseases occur, even mutating and destroying the human offspring. Therefore, the identification of lands with high accumulation of toxic chemicals, their reclamation remains an important problem. To do this, it is important to do the following in the cultivation of quality products:

- improvement of water-physical properties of soil;
- use of science-based irrigation procedures in crop irrigation;
- correct choice of irrigation methods and elements;
- Reproduction of beneficial microorganisms in the soil;
- use or non-use of mineral fertilizers on a scientific basis;
- failure to use pesticides, stimulants, herbicides and GMOs, mobilization of mineral nutrients in the topsoil to the root layer of the plant.

**Conclusion:** Based on the above information, it is reasonable to conclude that in our country, by not consuming unsafe drinks and food, by paying attention to the quality of purchased food, we can protect our health and prevent unpleasant situations.

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