

**ECOLOGICAL AND HYGIENIC APPLICATION OF THE
ACCUMULATION OF TOXIC SUBSTANCES IN SOIL AND FOOD
PRODUCTS UNDER THE INFLUENCE OF AGRICULTURAL FACTORS**

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DOI: 10.5958/2249-7137.2021.02525.8

ABSTRACT

Worldwide, more than 420,000 people die each year from consuming poor-quality food, and about 600 million people are diagnosed with health problems after consuming food that does not respond to sanitary-hygienic standards. In addition, food-related risks lead to the development of more than 200 acute and chronic diseases of the gastrointestinal tract.[1] . Accordingly, the cultivation of organic pure fruits and vegetables is now relevant. Nowadays, ensuring food safety in maintaining a healthy lifestyle depends to some extent on the composition of fruits and vegetables. It is known that the amount of nitrate in fruits and vegetables exceeds the allowable level due to the excessive use of mineral fertilizers to increase the productivity of agricultural products. Also, a number of scientific studies are being conducted to reduce and prevent these risks. According to data from research ASSURE the amount of nitrate in the fruit fed with mineral fertilizers was 80.8 mg / kg (60 mg / kg according to GOST), and in the variant of biological fertilizers this figure was 50.9 mg / kg. At the same time, the amount of these nitrates also affected the sugar content and acidity of the fruit. %, 0.40% in the biological fertilizer option and 0.51% in the mineral fertilizer option, which is 0.21% higher than the control. It was also found experimentally that the dry matter content was 12.85% in the control variant, which is 0.9 times higher in the biological fertilizer variant than in the 13.6% mineral fertilizer variant. In addition, mineral and bio-fertilizers themselves the use of the fruit with a normal amount of nitrate present an updated mineral and organic contamination in the soil. In

conclusion, our research has shown that the use of biological (siderite) fertilizers as an alternative to mineral fertilizers in the prevention of nitrate poisoning is universally acceptable.

KEYWORDS: *Organic Product, Environmentally Friendly Product, Nitrate Content, Sugar Content, Acidity, Dry Matter, Soil Nutrients, Food Safety.*

INTRODUCTION

Improving food security is important in our country to improve the health of the population. Excessive use of nitrogen fertilizers to increase the productivity of agricultural products affects the quality of food, in particular, it is worth noting that the excess of nitrate in fruits and vegetables has a negative impact on human health. Also, the Action Strategy for the further development of the Republic of Uzbekistan for 2017-2021 identifies "... further strengthening of food security of the country, increasing the production of environmentally friendly export-oriented fruit products" as one of the important strategic tasks, in this regard the cultivation of safe, organic produce is now relevant. In recent years, a number of reforms have been carried out in the country to ensure food security, fully meet the needs of the population in fruit products, their processing and export, and the cultivation of ecologically clean products. Including national food security, there are a number of decisions and decrees, in particular, of agricultural products to ensure compliance with international standards of quality and safety indicators of the Cabinet of Ministers dated 18.11.2020 "Organic products and raw materials as well as organic and mineral fertilizers safety regulations - Resolution No. 729 "On Approval of Legal Documents" .

The aim of the study is to develop a technological system for the cultivation of hygienically environmentally friendly, organic products, as well as to protect the soil from mineral pollution.

Research Methods

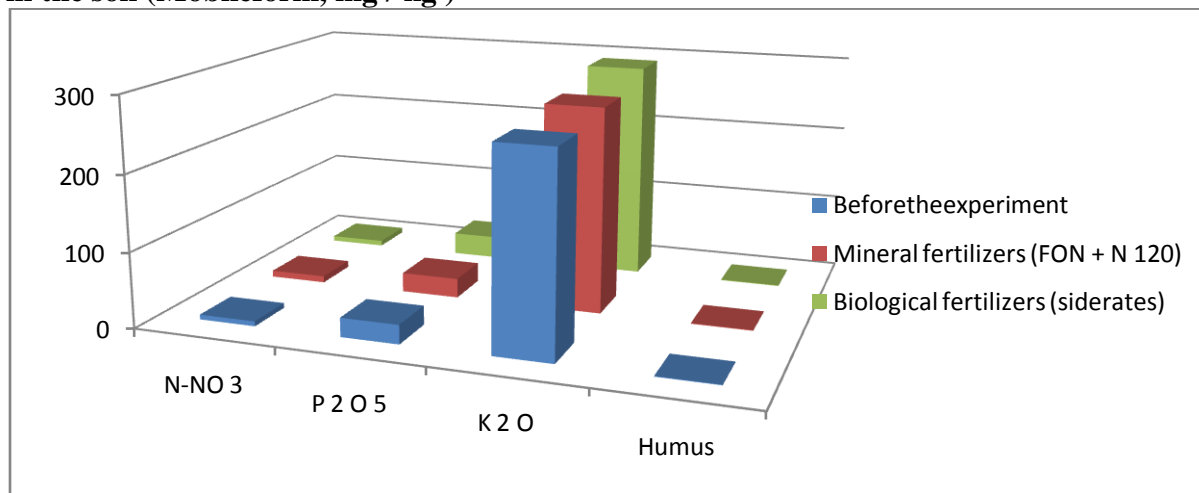
The experiments were carried out on the basis of methodological manuals and scientific recommendations, such as "Methods of agrochemical analysis of soil and plants" (1979), "Methods of state testing of agricultural crops" (1983).

Biochemical analysis of fruit composition is carried out on the basis of the method given in the manual "Methods of biochemical research of plants", edited by AI Ermakova, nitrate content of fruit in Soeks nitrate tester-2 (2009), sugar content of fruit on a refractometer, acidity titration. increased, and the dry matter was carried in the Bertrand method. The amount of humus in the tillage layer I.V.Tyurin, gross nitrogen, phosphorus, potassium content I.M.Maltsev and L.P.Gritsenko, interchangeable potassium flame photometer, nitrate nitrogen in the methods of Granvald-Lyaju, as well as mobile phosphorus B.P. Made in Machigin style .

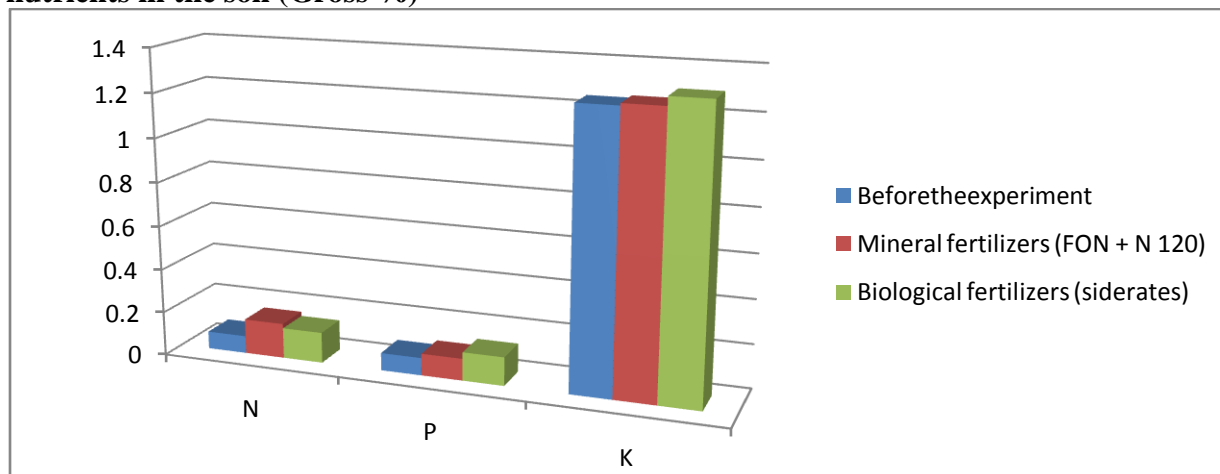
Research Results

Experience 20 During the period 14-2016 in the foothills of the Zarafshan oasis acad. Horticulture, viticulture and winemaking named after M. Mirzaev was carried out in the peach orchard at the Samarkand Experimental Station. In the experiment, mineral fertilizers and alternative biological (siderite) fertilizers were used. The gross and mobile amounts of them in the soil were also analyzed. This is because every nutrient in the soil is directly absorbed into the fruit and affects its ecological and hygienic indicators, as well as our health by entering the human body through it.

1a – Table Experience mineral fertilizers and biological Arda after the amount of nutrients in the soil (Mobileform, mg / kg)



1b – Table Experience mineral fertilizers and biological Arda after the amount of nutrients in the soil (Gross %)

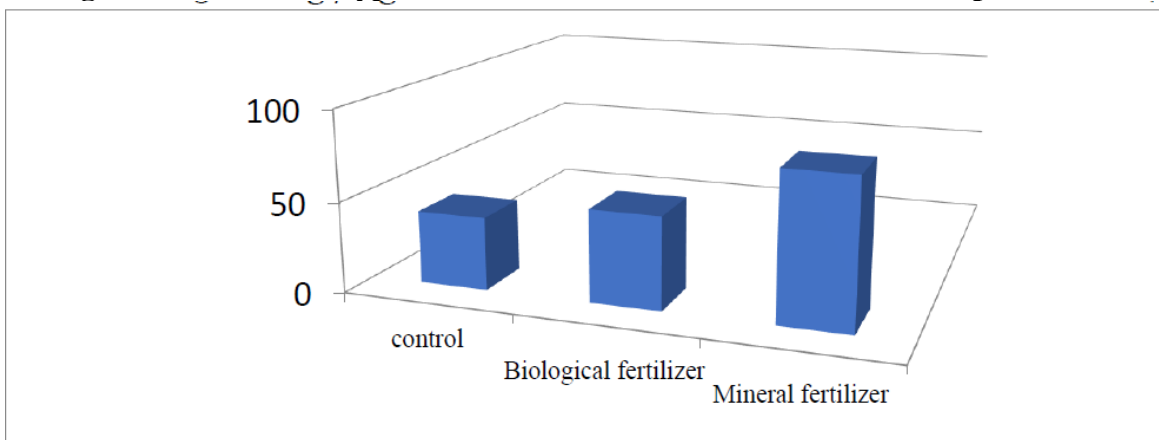


In this table, it was found that while the humus content was 0.80% before the experiment, the biological fertilizer options increased to 0.84% over three years. The total amount of nitrogen, phosphorus and potassium was 0.08% before the experiment and 0.10-0.13%, depending on the species, and their mobile forms increased accordingly. In the variant fed with mineral fertilizers, it was observed that the minerals in the soil are quickly assimilated and accumulate in the fruit. Also, chemical analysis of the composition of the fruit revealed that more nitrate was accumulated in the variant fed with mineral fertilizers than in biological fertilizers.

Quality of fruit content is one of the important conditions of export requirements. Fruits, with their healing, aroma and taste, satisfy the human body's need for vitamins. But now the fruits and vegetables in order to increase the productivity of excess use of fertilizers li sh due to a negative impact on the amount of nitrate in the structure.

In the experiment, the nitrate content of the fruit in the biological fertilizer variant was 50.9 mg / kg, while in the mineral fertilized variant the figure was 80.9 mg / kg. The permissible amount of nitrate for the fruits was required to be 60 mg / kg and it was found that 30.0 mg / kg excess nitrate was accumulated in this variant (Fig. 2).

Figure 2 Influence of types of fertilizers on the amount of nitrate in peach fruit



Currently, the focus in global health is on food safety, and to date, nitrate poisoning has been observed due to the high content of nitrate in fruits and vegetables. The daily number of nitrates entering the human body should not exceed 600 mg. 222 mg per body weight of 60 kg on average is the daily nitrate norm. The above data show that not only nitrate itself but also the sugar and acidity of the fruit is a factor that regulates them.

Mineral fertilizers in the experiment was not only me, but the amount of nitrate contained in a sugarfruit, acidity and dry substances are also identified (3 picture is) .

Figure 3 Peach fruit biogeochemical effects of types of chemical fertilizers

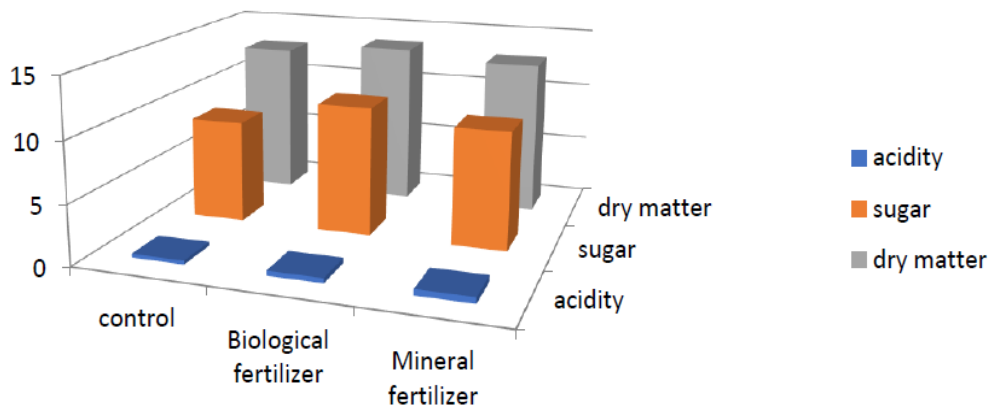


Figure 3 shows that in the experiment, the sugar content was 8.65% in the control (without fertilizers) variant, 10.80% in the biological fertilizer (siderates) variant, and the acidity was 0.30% in the control variant, and 0.40% mineral in the biological fertilizer variant. fertilizer control options were 0.51%, compared with 0, 21 % higher than the levels detected. It was also

found experimentally that the dry matter content was 12.85% in the control variant, which is 0.9 times higher in the biological fertilizer variant than in the 13.6% mineral fertilizer variant.

CONCLUSION

The growing population of the world is also leading to an increase in demand for food. Quality food is a guarantee of health. Based on the above data, it can be concluded that consumption without analyzing the amount of nitrate in fruits and vegetables is dangerous for our health. Not exceeding the daily norm guarantees our health. The presence of sugar, acids and vitamins, as well as other biologically active substances in the daily consumption of fruits and vegetables means a quality diet. Regulating the daily intake of nitrates is one of the important factors that everyone should follow.

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