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Short Communication

Influence of Mineral Fertilizers on Quality of Grain

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Received: January 14, 2019; **Published:** March 28, 2019

Wheat is the most important food crop, because due to the gluten contained in wheat, bread does get high nutritional value, pleasant taste, with a porous, elastic and flexible crumb [1-3].

The quantity and chemical-physical properties of gluten in wheat grains are influenced by many factors. Studying the effect of the content of different substances on a grain has scientific and practical interest.

A kind of grain is a combination of factors with certain hereditary morphological, biological and economic characteristics and properties within the general concept. The kinds of grain distinguish between local and selective kinds.

The kind is characterized by a complex of morphological, biological and economic characteristics and properties, by which one understands yield, frost resistance, resistance to disease and pests, requirements for the soil and its composition, requirements for moisture, light, temperature, early maturation, non-falling, the size, shape and color of the grain, the characteristic features of the chemical composition, storage stability, flour yields and the required energy consumption for grinding, baking, macaroni and other technological properties.

The use of mineral fertilizers is one of the leading elements of intensive farming and has a great influence not only on improving soil fertility and yield, but also on the biochemical properties and quality of grain.

A special attention of farmers is paid to nitrogen, phosphorus and potassium, which are absorbed by plants from the soil, but available forms make up 1 - 2% of the total amount of the same elements that are in inaccessible form for plants. In rich soils such as dry, these inaccessible reserves would be enough for hundreds or even thousands of harvests, but they cannot be quickly converted into a digestible form without destroying the soil. To overcome this deficiency, organic and mineral fertilizers are applied to the soil.

Research has established that in grain-producing farms of the Bukhara region the increase in grain yield as a result of the use of mineral fertilizers (nitrogen, phosphorus, potash) was 6.7 c/ha for winter wheat. Spring wheat research is shown in figure 1.

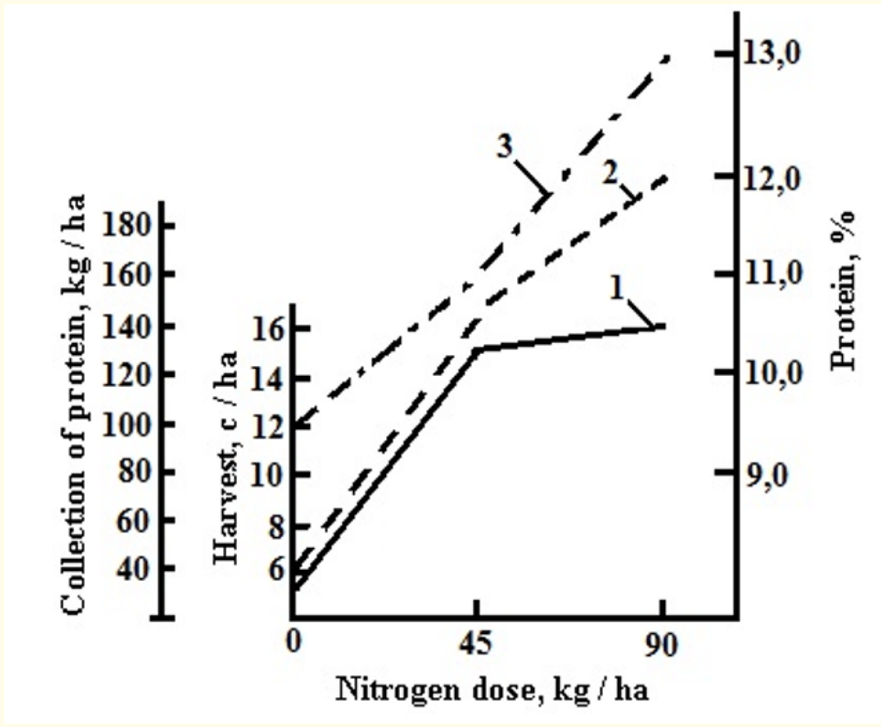

Figure 1: *The effect of nitrogen fertilizers on grain yield (1) of winter wheat, its protein content (3), harvest per hectare (2).*

The results show that mineral fertilizers dramatically change the chemical composition of the grain.

The appropriate selection of doses of fertilizers, taking into account the chemical composition of the soil, leads to a significant improvement in the quality and technological advantage of wheat grain along with an increase in yield. Making only phosphorus and phosphate-potassium fertilizers without nitrogen helps to increase the grain yield, but does not give effect or even slightly reduces the content of protein in it.

It is established that nitrogen fertilizers, increasing the content of gluten, affect its quality in different ways depending on the kind and the corresponding weather conditions during the period of ripening, maturing and harvesting of grain. Under conditions of high temperature and lack of moisture, the quality of grain grown with the use of fertilizers improves as compared with the control one (without fertilizers), and in some cases remains unchanged. Phosphate fertilizers on the background of a sufficient nitrogen content can significantly increase the protein content in plants and grain.

With long-term use of fertilizers on saline soil, nitrogen fertilizers reduce the content and quality of protein, and the simultaneous use of phosphate fertilizers not only suppresses the negative effect of nitrogen, but also increases the protein content and improves its quality.

Thus, when determining the influence of the external environment on the quality of protein and gluten, it is necessary first to take into account the weather conditions during the maturing and ripening period of the grain.

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Volume 5 Issue 4 April 2019