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INFLUENCE OF LEGUMES ON SOIL FERTILITY

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Abstract

The experiments carried out showed that the cultivation of legumes leads to the development of agriculture based on effective plant protection and high yields while respecting the environment and caring for human health.In this regard, it can be noted that the cultivation of soybean: provides the livestock sector with high-quality and protein-rich feed; provides an increase in soil fertility in order to form a short-term crop rotation system in agriculture.Thus, a thrifty attitude and conservation of land fertility and its scientifically based use is of paramount importance in the intensification of agriculture.

The deterioration of the environmental situation around the world, food security - all these reasons pose a number of challenges for modern environmental science. The main one is the development of new food technologies that meet modern requirements, are distinguished by minimal costs, multifunctional properties, as well as the ability to maintain human health in adverse environmental conditions. In solving all these problems, raw materials for plant processing products and environmentally friendly crops can play an important role.

Promising plants are one of the main natural factors of soil formation, therefore, the phytomeliorative approach makes it possible to reproduce and increase soil fertility with high efficiency with minimal anthropogenic load, to reduce the cost of agricultural production within the framework of the adaptive landscape system of agriculture. Preservation of soil fertility is a strategic task for the optimization and sustainable development of any state.

Legumes contain a lot of folic acid, which is an absolutely indispensable substance that enhances the replication of deoxyribonucleic acid, which in turn is the prevention of cancer, and is also necessary for the body of pregnant women.

The high concentration of bean proteins and fats in the grains give them great nutritional value, which has been the reason for their use to this day. Protein in legumes is considered close in its biological content and balanced composition of amino acids to animal proteins. Legumes are valuable sources of

minerals. Note that when compared with other plants, elements such as phosphorus, potassium and iron predominate in the beans.

Soybean is a plant with many properties. Its grain is one of the most valuable crops because it contains 50% protein and up to 28% fat. Today, more than 400 different products necessary for the national economy are produced from soybeans. Soy grain is an environmentally friendly and high-quality raw material used in the food industry. The plant, both fresh and dried, is rich in organic compounds and inorganic substances valuable for food.

After soybean cultivation, the yield of wheat, cotton, corn and other crops increases and their quality improves. Another feature of this plant is that it belongs to the legume family and leaves pure nitrogen in the soil.

At present, the problem of restoring and maintaining soil fertility in our republic remains the most acute, urgent problem. There is no need to apply a large amount of mineral fertilizers to the field during the growing season, since the plant itself is able to absorb and use nitrogen from the air.

The method of mixed sowing of legumes is widespread in Egypt, India, and China. In the countries of the Caucasus, Ukraine and Moldova, soybeans have long been grown as an addition to corn. According to the experiments of Kh.N. Atabayeva (2004), Annamuratova D., Safarova K.S. (2009) and ShBabadjanova (2012), when silage and soybeans are sown as early crops and 100 kg/ha of phosphorus and 50 kg/ha of potassium are applied, the yield grain is 20-22 centners / ha.

Soybean and Maize crops in experimental plots

According to experts, in order to ensure food security in the country and maintain its stability, it is necessary to expand the area of food crops. According to Shott P.R. (2001), the assimilation of free nitrogen in the air in the roots of legume bacteria is more accelerated during the flowering phase and is associated with the process of photosynthesis

Therefore, at an early stage, it is necessary to plant soybean as a repeat crop, that is, pay attention to the fact that its flowering phase corresponds to a long day period.

According to the experiments of Gamzikov G.P (1995), proteins, vitamins and other compounds synthesized in bacteria living in the roots of legumes are much better than those formed by mineral nitrogen. Gamzikov G.P. (1995) states that the bacteria that live in the roots of leguminous plants belong to the genus Rhizobium. So, E.P. Kostenko (1984) noted that on irrigated lands it is possible to grow soybean and corn as a secondary crop twice a year and obtain high quality crops.

For several years, we have been conducting research on the mixed planting of corn and soybeans in the Khorezm region. Based on the ongoing experiments, positive results were obtained, namely, soil fertility increased, and at the end of September, an average of 15–18 centners / ha of soybeans was harvested. Our farmers can benefit from this experience. Before the experiment, the amount of humus, total and mobile NPK, pH and ES in the soil were determined by the methods adopted in the following soil horizons 0-30, 30-50, 50-70 and 70-100 cm. The pH was determined in a water/soil suspension

(1:5) using Eijkelkamp 18.21 equipment and soil salinity (water/soil ratio 1:1) using an IKS-Express TES meter.

The experiments carried out showed that the cultivation of legumes leads to the development of agriculture based on effective plant protection and high yields while respecting the environment and caring for human health.

In this regard, it can be noted that the cultivation of soybean: provides the livestock sector with high-quality and protein-rich feed; provides an increase in soil fertility in order to form a short-term crop rotation system in agriculture.

Soybean harvest in experimental plots

New scientific information about the relationship between health and individual food components has led to the emergence of a scientific direction in the science of nutrition. One of them is the concept of positive nutrition, which is called healthy nutrition or functional nutrition.

Рис. 3. Root nodules soybean

The composition of functional foods contains all the necessary ingredients to stabilize human health, increase its resistance to various negative factors, improvephysiological processes in the human body for a long time with an active lifestyle. These products also have a wide range of uses and should be used on a regular basis as part of normal diets.

Thus, a thrifty attitude and conservation of land fertility and its scientifically based use is of paramount importance in the intensification of agriculture, in increasing productivity, increases the value and importance of land not only as an object of production activity, but also as one of the main components of the biosphere as a whole.

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