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CHARACTERISTICS OF SOIL FERTILITY OF THE NORTH -WEST KAZAKHSTAN

Abstract

Data analysis of scientific institutions and field studies show that extended reproduction soil fertility in modern agriculture is not possible without the presence of perennial grasses in crop rotation.

Keyword: *soil, reproduction fertility, crop rotation, perennial grasses.*

The basis of the agricultural production of Kazakhstan makes up the soil with medium and low humus content. On the number of cultivated lands accounts is 71.3% [1]. A similar situation is observed with the soil fertility in the North-West of Kazakhstan, where most common are dark brown hard and medium-loamy soils [2].

Calculations show that the system of intensive farming in cereal crop rotation with a set of spring crops is formed by a negative balance of humus with a deficit of 590-640 kg / ha. Introduction to the winter crop rotation and placement of black couples with plowing to 80 t / ha provides favorable conditions for humus accumulation. In this case, the content of humus in the 0-40 cm soil layer increased in the first rotation of 0.25, for the second rotation - on 0,35% [3].

Manure is the most effective means of reproduction of soil fertility and provides not only a direct impact on crop yields, but also the consequence of which is also manifested most noticeably in the second and third crops in the rotation.

In modern systems, Resource Saving main type of organic fertilizer was the straw harvest. According to the existing regulations are a ton of straw is equivalent to three tons of litter, its systematic introduction to the use of nitrogen fertilizer is directed to the stabilization of humus content in the soil.

Conducted Ural Agricultural Experiment Station, calculations show that, if the grain crop rotations at full steam learn Energy Saving method of cultivation, the balance between the processes of synthesis and mineralization is mainly achieved through the replacement of steam alone to black, and a couple of mandatory sowing of winter crops. During the spring and summer care field steam partial replacement for chemical machining can not only significantly reduce the consumption of energy resources in the control of weeds, but also reduce the rate of mineralization of organic substances in the treated layer of soil. Comparative evaluation of different technological methods in the seedbed and the spring and summer care for the steam field has shown that the existing (traditional) practice of fallow fields with a mechanical cultivator not only has the highest energy costs, but also the highest degree of nitrate nitrogen in the soil for spring and summer fallow. So, at the beginning of field work content of nitrate nitrogen in the soil layer 0-40 see sostavlyalo 39,8 mg / kg, and at the end of the spring-summer period (August), the average for the three years was formed to 102.4 mg / kg soil. Using the blade loosening at 12-14 cm as the main processing steam and using the same measure the spring-summer care for the ferry as indicated in the above embodiment, dramatically reduces the content of nitrate nitrogen. However, in this embodiment, the pair noted the intense accumulation of nitrates (95,2 mg / kg soil)[4].

Improving technology fallow due to refusal of the main processing of the soil and partial replacement of mechanical treatments on the chemical will reduce the risk of migration of nitrogen in the lower layers pochvy. Posev winter crops, rather than spring wheat, provides both an increase in productivity per hectare, and a greater return of organic matter in the form of straw and crop residues, root.

Emphasizing the straw, as a means of accumulation of organic matter, it should be noted that the expanded reproduction of soil fertility in modern agriculture is not possible without the presence of perennial grasses in crop rotation. In full compliance with cultivation technology, perennial grasses are resistant agrophytocenoses who are well able to withstand drought. Due to the large mass of plant residues and their high degree of humification, perennial grasses have successfully addressed the issue of increasing the content of organic matter in the soil. The magnitude and duration of the humus reproduction depends on the species composition of herbs and their degree of adaptation to the climatic conditions of the region.

The results of observations show that the higher the productivity of land mass agrophytocenosis, the more impact it has on the fertility of the soil. The leading place in the accumulation of humus owned grass-legume mixtures and alfalfa in pure form. Over the four-year period of stay on the output field crop rotation these agrocnosises able to increase the humus content at 0,35-0,46%, or 11,9-15,7 t / ha crop plants respectively [2].

At the same time important and competent implementation of the accumulation of organic perennial grasses, determined the choice of technology treatment of the formation of herbs and its further use in the rotation crops.

So comparative assessment of different technologies of cultivation of crops for perennial grasses showed that in the four years of application of the annual plowing importance of humus in the soil back to the original levels. Switching to a minimum and zero processing technology herbs and their subsequent use for cereal crops has significantly reduced drop in humus. The denser the addition of 0-30 cm layer reduces its total porosity, and hence the active aeration. As a result, there are formed more favorable conditions of preservation and use of cultures of soil organic matter and extend its productive use, in comparison with classic plowing [2].

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ТҮЙІН

Бұл мақалада егіншілік жүйесінің альтернативті нұсқалары қарастырылады. Ауыл шаруашылық өндірісінің биологиялық әдісінің игерілуінде топырақ құнарлығының көтерілуіне көпжылдық шөптердің ықпалы зор екені баяндалады.

РЕЗЮМЕ

Анализ данных научных учреждений и полевых исследований показывает, что расширенное воспроизводства плодородия почв в современной земледелии невозможно без наличия в севообороте многолетних трав.