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Issue Article

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ANALYSIS OF THE MECHANISED TECHNOLOGY OF CORN CULTIVATION

Abstract: *The rapid development of animal husbandry and poultry farming in our republic is highly dependent on the production of grain and fodder crops being paid for at the expense of internal resources. For this, it is necessary to cultivate high-yielding corn varieties in large areas based on efficient technology in farms. However, farmers in most regions face problems in obtaining high and quality products from corn. Both from the agrotechnical point of view and from the energetic point of view, the complex scientific research of the mechanized technologies of corn cultivation and the mechanization tools used in the performance of these operations is of great theoretical and practical importance in solving the problem of obtaining a high yield. The purpose of the research work is to justify energy-efficient technologies and mechanization tools in full compliance with agrotechnical requirements for corn cultivation operations.*

Key words: *corn, cultivation, technology, mechanization, energy.*

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Introduction

The rapid development of animal husbandry and poultry farming in our republic is very dependent on the payment of grain and fodder crops production at the expense of internal capabilities. For this, it is necessary to cultivate high-yielding corn varieties in large areas based on efficient technology in farms. However, farmers in most regions face problems in obtaining high and quality products from corn. Both from an agrotechnical point of view and from an energetic point of view, the complex scientific research of the mechanized technologies of corn cultivation and the mechanization tools used in the performance of these operations is of great theoretical and practical importance in solving the problem of obtaining a high yield. The difference of the study from the corresponding research works conducted so far is in the evaluation of the existing and prospective cultivation technologies and the corresponding machinery system in a complex manner, according to the amount of energy spent on the cultivation of a single field or a single product production in a closed cycle. It is recommended to plant corn in the irrigated lowland and damp regions of our Republic. Place in the crop rotation: Winter wheat, barley, rye, legumes, perennial fodder, inter-row crops, vegetable crops are considered the best predecessors for corn. Corn itself is a good predecessor for autumn and spring crops. Due to the fact that the soil and climate conditions of the regions where corn is planted are sharply different from each other, agrotechnical cultivation works should be applied according to the selected varieties. When 25-30 cm deep plowing is carried out in such areas, the water-physical properties of the soil are improved, water reserves are collected for plant development, and the aeration process in the soil is improved. For this purpose, in the field where corn will be planted, covering is done after the predecessor plants at a depth of 8-12 cm. Carrying out this operation leads to shredding of plant and stump residues, softening of the top layer of the soil, germination of weed seeds, moisture retention, etc. has a positive effect on the processes. The top layer of the plow should be loosened with a trowel or rotor harrows, in this operation the soil is softened, granulated, the surface of the soil is smoothed and

weeds are destroyed, the seeds are buried at the same depth. The last pre-sowing crops should be finished 2-3 days before sowing. Before sowing, the fields should be given Randop, Metalox from the soil herbicides and mixed with the soil [1,3]. Since corn is a heat-loving plant, it should be planted when the temperature in the soil is 8-100 C. Mass sprouts are obtained when the soil temperature is 10-120C. The optimal temperature for the normal development of plants is considered to be 20-250C. Corn sowing periods are different in different soil and climate zones. Thus , the optimal sowing period in lowland regions is considered to be the 1st decade of April, and the 3rd decade of April in mountainous and foothill regions. Depending on the size of the seed, if the mass of 1000 grains is 300-350 grams, the sowing rate of corn varieties grown in our republic should be 17-20 kg for grain, 45-50 thousand plants per hectare, and 22-25 kg for silage, 65-70 thousand plants per hectare. In the field, rows should be 70 cm for grain, 25 cm for plants (70x25), and 70x20 cm for silage. When the moisture in the soil is normal, the seed burial depth is 8-10 cm. In soils with a heavy mechanical content, this should be reduced to a depth of 6-7 cm.

In the mechanized cultivation of corn, its irrigation, cultivation 2-3 times, weed control measures, thinning and dredging have important practical significance. Between the rows, the first cultivation is 8-10 cm deep, the second 6-8 cm deep, and the third 5-6 cm deep, gives positive results. Corn is a nutrient-demanding plant. It should be provided with organic and mineral fertilizers in order to grow and develop normally and produce high yields throughout the growing season. Nitrogen, phosphorus and potassium elements have a special role in the regulation of physiological and biochemical processes in plants. These elements are considered the main nutrients of plants. When applying both organic and mineral fertilizers, the biological characteristics of the cultivated plant, the cultivated area, the agrochemical indicators of the soil and the climatic conditions of the zone should be taken into account. In the early stages of growth and development, corn is more demanding of nitrogen and phosphorus. Corn does not grow well in very acidic soils. For its normal development, the reaction of the soil environment should be neutral (pH-6-7). 50-60 cents per hectare. from or 500-600 sen. when the green mass is removed, 150-180 kg of nitrogen, 50-60 kg of phosphorus and 150-160 kg of potassium are removed from the soil. Numerous research materials have been obtained covering the features of corn cultivation in accordance with specific natural and economic conditions in modern agriculture. This includes - the study of methods, duration and depth of soil cultivation in different ways, determination of erosion control measures, study of special 2-3 layer soil cultivation methods and speed of movement of soil cultivation tools, methods of optimization of mechanical soil cultivation and other issues [1,3] . In some cases, the solution of one issue facing land cultivation conflicts with another. For example, intensive soil cultivation, while improving its structural condition, accelerates humus decomposition and negatively affects the efficient use of fertility. Or, keeping plant residues in the top layer of the soil prevents the process of erosion, while it allows the spread of weeds, diseases and pests. The quality of soil cultivation depends on the structure of the tools used and the physicomechanical properties of the soil. By correctly choosing the tools used, it is possible to give the necessary direction to the technological processes taking place in the soil and to achieve high-quality cultivation. Cultivation of the soil consists of the mechanical effect of the working bodies of the machines and tools used for the purpose of creating favorable conditions for the development of plants by changing its regimes of water, air, heat and nutrients [6]. Plowing is the main method of tilling the soil and is carried out through cotons . The main part of Kota is considered to be gavahin and layir. The soil layer is cut with a harrow and turned using a leveler. Depending on the shape of the land, plowing is done in different ways and techniques. The lid of Kota can be screw-shaped, semi-screw-shaped, cylinder-shaped and cultured [4,7]. Fig. 2. The forms of the Kotan shed are a-round, b-cylindrical, c-semi-spiral, c-spiral. Disc cultivators cultivate the soil to a depth of 8-10 cm and are mainly used to cut crop residues and cultivate raw and rested soils before sowing. ЛДГ -10 disc floater. Head-to-head cultivation is done to cut weeds, soften the soil and partially mix it. Depending on the purpose of cultivation, the working organs of the cultivator are one-sided cushions, arrow-shaped cushions, needle-shaped softeners, etc. can be Recently, weed cultivators of various shapes are used in larger areas.

Mulching is applied during soil softening, mixing, smoothing the surface and destroying weeds. The working body of the trowel consists of square or round teeth fixed to its body. All the teeth of the trowel should be of the same size and length, and one tooth should not follow the other during cultivation [4,7]. Image. 5. Trowel Energy analysis of soil cultivation operations will allow to reduce the energy consumption for cultivation of a single area by 20...30 percent without harming the quality indicators of the technological operation for different soil and climate conditions. Energy analysis will also allow to accurately determine the direction of prospective improvement of mechanization tools, including tillage machines [5,6,9,10]. The results of the research conducted by a number of scientists show that the annual loading of the machine, along with the energy capacity and productivity of the unit, has a significant impact on the costs of agricultural operations [2,5,8]. From this point of view, the soil cultivation method carried out at different times (spring, summer, autumn) should meet the requirements of the

technology and the machines used for this purpose should be multifunctional. The purpose of the research work is to justify energy-efficient technologies and mechanization tools in full compliance with agrotechnical requirements for corn cultivation operations . In order to achieve this goal, the following tasks are planned: 1. Studying the functional dependence between the engine and energy capacity of mechanization tools used in corn cultivation operations. 2. Study of the factors affecting the productivity of the unit in corn cultivation operations. 3. Study of factors affecting fuel consumption in corn cultivation operations. 4. Study of factors influencing the energy intensity of corn cultivation operations. 5. Optimizing technology for corn cultivation according to energy consumption. 6. Prediction of prospective improvement directions of high-energy-intensive operations and mechanization tools. 7. Economic efficiency of the application of optimal cultivation technology in terms of energy consumption.

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