SCIENTIFIC AND TECHNOLOGICAL BASIS OF POTATO DEVELOPMENT

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ANNOTATION

This article provides information on the technology of growing early-maturing varieties of potatoes with a short ripening period, medium-early, medium-ripening or medium-late varieties, as well as scientifically based information.

Keywords. Potatoes, soil, soil-climate, agricultural crops, potato growing technologies, operation, plow, chisel, cultivator, cotton, furrow, yield.

Аннотасия. Ушбу мақолада картошка экиш муддати, пишиб йетилиш даври қисқа бўлган картошканинг эртапишар навлари, ўрта эртапишарлари, ўртапишар ёки ўрта кечки навларини йетиштириш технологияси ҳамда илмий асосланган маълумотлар келтирилган.

Таянч сўзлар. Картошка, тупроқ, тупроқ-иқлим, қишлоқ хўжалик экинлари, картошка йетиштириш технологиялари, операсия, плуг, чизел, култиватор, пушта, жўяк, ҳосилдорлик.

Аннотация. В статье представлена информация о технологии выращивания раннеспелых сортов картофеля с коротким периодом созревания, среднеспелых, среднеспелых или среднепоздних сортов, а также научно обоснованная информация.

Ключевые слова. Картофель, почва, почвенно-климатические, сельскохозяйственные культуры, технологии выращивания картофеля, эксплуатация, плуг, чизель, культиватор, хлопок, борозда, урожайность.

INTRODUCTION

Decree of the President of the Republic of Uzbekistan No. PF-4947 of February 7, 2017 "On the Strategy of Actions for the Further Development of the Republic of Uzbekistan", December 23, 2016 "On further reform of agricultural development in 2016-2020" Resolution No. PK-3117 of July 7, 2017 "On measures to further develop the scientific and technical base of mechanical engineering in agriculture" and other normative and legal acts related to agriculture. In the implementation of these tasks, to some extent, the above-mentioned decisions and their application in the field of agriculture today show their practical significance. The Strategy of Actions for the Further Development of the Republic of Uzbekistan for 2017-2021 includes, in particular, the introduction of modern agro-technologies that will save resources for the modernization and accelerated development of agriculture. In order to fulfill these tasks, one of the most important issues is to improve the technology of tillage for planting potatoes, to

justify the types and parameters of cost-effective technical means.

In particular, one of the main factors in increasing the yield of potatoes in the world today is the correct choice of flour, and the other is the preparation of the land for planting at the level of quality agro-technical requirements. This is due to the fact that if the soil is not treated properly before sowing, ie if the soil is not soft, it will have a negative impact on the quality of potato seeds at the level of agro-technical requirements.

In Uzbekistan, there is a practice of using tillage machines and agricultural machinery used in cotton growing due to the lack of machinery that can fully meet the agro-technical requirements for pre-sowing tillage. As a result of this operation, the structure of the soil is disrupted, which has a negative impact on its physical and mechanical properties, delays the sowing period and leads to an increase in material costs.

We would like to make some recommendations on the cultivation of early varieties of potatoes. Potato planting times are the opposite periods based on years of experience and scientific research, depending on the climatic conditions of the regions:

- February 25 - March 10 in Tashkent, Samarkand regions and the Fergana Valley;
- Surkhandarya and Kashkadarya regions from February 15 to March 1;
- March 10-20 in the Republic of Karakalpakstan and Khorezm region.

If the potato sowing period is delayed by 10 days, the yield will decrease by 10-12%. Here are the early varieties of potatoes with a short ripening period: Sante, Nevsky, Rosara, Latona, Agave, Granola, Zerafshan, Red Scarlet and middle-aged: Alvara, Arinda, Beluga, Victoria, Draga, Condor, Carlena, Marlona, Marfona, Marfona sowing is recommended. If potatoes are planted without knowing the exact variety, or if the mid-evening varieties are planted, the roots of the white buds will appear late and the days will be hot and hot.

In order to increase the yield of potatoes, improve their quality and ensure early ripening, it is necessary to produce medium and large seed pods. When sown at a seed weight of 35-70-130 g, germination is reduced by 2-3 days, the period from sowing to flowering is reduced by 8-13 days, and the yield is increased by 35-40%. One of the main factors in preparing tomorrow's potatoes for planting is the production of seedlings. Planted seedlings germinate 12-25 days earlier than uncultivated ones and increase yields.

Before sowing, the seeds should be placed in boxes of 20-25 kg, with no more than 2-3 layers on the floor and in other places, where the temperature is 15-18 ° C. The stems are rotated every 7–10 days (bottom row up). In this case, the growths that start with flour become greener and stronger. If the seed is sown in a fork, the shoots will be 0.5-1 cm. should not exceed. Otherwise it will break during sowing. If it is planted by hand, the shoots should be cut 2-3 cm. It is advisable to cultivate as much as possible.

The seeds are sown separately depending on their size. This ensures that the plants emerge from the ground and grow in the same way. Otherwise, the small plants will not grow evenly. As a result, the seedlings that sprouted first crushed the ones that sprouted later. Early-maturing varieties are planted 20-25 days before sowing, and mid-early varieties 30-45 days before sowing. If more is left, productivity will decrease. Propagated seedlings should be removed at the time of sowing, as well as seedlings that have not germinated well.

When the seeds are taken out into the field, they are safely removed in wooden boxes. The

sowing depth should be 7–9 and the sowing scheme should be 70x25-30 or 90x25 cm. 25-30 tons of local fertilizers, 200 kg of nitrogen, 170 kg of phosphorus, 100 kg of potassium fertilizers are applied in pure form to get high yields from potatoes in the morning. In this case, 70% of all organic fertilizers and phosphorus and potassium fertilizers are given in the field, and 30% of the remaining phosphorus and potassium fertilizers and 50% of nitrogen are applied in the first treatment after germination of potatoes, and 50% of the remaining nitrogen before flowering.

During the growing season, groundwater is irrigated 7-8 times in deep soils. Irrigation is carried out once a week, at the rate of 400-500 m3 per hectare in 5-6 days with the emergence of crop seeds. Between every 2 irrigations, the row spacing is loosened to a depth of 10–12 cm. This measure is carried out until the plants shed [1].

Potatoes need to be protected mainly from the Colorado potato beetle. This beetle overwinters in the soil and emerges at the time when the seedlings begin to emerge from the ground. If possible, it should be collected by hand, and after laying the eggs should be treated with chemicals. Otherwise, productivity will fall sharply.

"Traditional" technology of potato cultivation is widely used in farms of the Russian Federation. It envisages the effective use of complex agro-technical, seed, organic and mineral fertilizers, organizational measures and their implementation in the best quality and optimal time. One of the distinguishing features of this technology is the formation of a deep softened layer. To do this, in the spring the soil layer is softened to a depth of 10-14 cm, equipped with non-tillage housings or processed with chisel plows. The seeds are sown at a depth of 6-8 cm in a short time. The technology is designed to use a set of 4-row machines for planting and growing potatoes with a width of 70 cm between rows.

This technology is technically well-equipped, but it has serious shortcomings. As a result of repeated penetration of the aggregates into the stalk during cultivation, the soil is compacted, the seedlings are injured during cultivation, and the seedlings emerge and sprout. Nevertheless, when technological discipline is observed, it ensures a regular yield of more than 150 centners per hectare.

Zavorov's technology for potato cultivation includes a complex agro-technical, seeding and organizational measures, and provides for the timely, quality conduct of these measures. In the spring, the potato-growing area is re-cultivated at a depth of 27-30 cm with plows equipped with cultivators 10-14 cm and plaster-free housing.

In order to get the foam, the cultivators are placed in two, three tiers, and are equipped with a new type of semiconductor, instead of thinning and dusting workpieces. The three-tiered oak, which is mounted on the back, is shaped like an oval on a loosened soil. To cultivate the land where the potatoes are planted, the cultivators are equipped with scissors, rotary softeners and rotary rakes to work on the unexplored area.

Potato cultivation requires the use of high-quality seeds on the basis of "Holland" technology, the use of chemicals in sown areas and strict adherence to technological discipline. The disadvantage of this technology is that in the process of crop cultivation, it is necessary to reduce the amount of mechanical work on the soil, to reduce the amount of mechanical work on the soil, to reduce the amount of mechanical work, to treat the soil with a variety of

chemicals and herbicides. provided for.
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In autumn, instead of plowing, harrows and cultivators, the soil is loosened to a depth of 14-18 cm with the help of a vertical milling cultivator. In it, with the help of spherical disks of a 4-row potato planter, 8-10 cm high and 30-35 cm wide ridges are harvested and seeds are sown at a depth of 4-5 cm. Between the ridges is applied a layer that is softened, but not affected by the unit, and then used in the process of cultivation to produce high ridges.
The disadvantage of this technology is the high cost of chemicals and equipment, as well as the high energy content of the operations performed.
The "Western Europe" technology of potato cultivation is intended for growing potatoes on rough soils and rocks, and in the CIS countries it is called "Grimme" technology [3].
The main technological processes that ensure the effectiveness of this technology are the use of chemical methods in the control of weeds, clearing the soil layer where the potato seedlings are located from stones and lumps and softening the soil layer below it. Preparation of soil for sowing is carried out in two stages. First of all, the depth is 25-30 cm, equal to the distance between the wheels of the tractor. is obtained. At the same time, the soil is softened with softening teeth to a depth of 10-15 cm to form a ridge 140 cm wide. Then, with the help of a stone-separating machine, the stones and rocks are divided into three fractions: small-sized soils pass through the holes of the machine elevator and are thrown back on the ridge, the size of 30-100 mm. Stones, blocks and other foreign objects are thrown to the ridge (tractor-driven ridge) with the help of a daily conveyor. This is usually done in the fall or spring.
The main disadvantage of Grimme technology is the increase in the cost of using the machine and the high energy efficiency of the technology in clearing the land from stones and stones and removing them from the sowing area.
Cultivation technology on the sidelines (row spacing width 90 and 75 cm) is based on the use of new complex machines. This technology envisions the fall of fallow lands in two stages: a 10-15 cm deep tillage with a milling cutter and a 25-27 cm deep loosening of the loosening of the shoots. Agricultural machines and combine harvesters used for tractors belonging to the 2nd class are used for technological operations. This technology of potato cultivation has been achieved with the help of equipment manufactured by the Russian enterprises "Eurotechnika" for the league width of 90 cm, and for the league of 75 cm (Europe) in the German enterprises "Kolnag". This technology allows for a sharp increase in potato yields compared to traditional technology, a 1.5-2-fold reduction in the accumulation of potatoes and their injury. However, he called for more use of chemical agents and strict adherence to technological discipline. [4]
Today, the main task of potato cultivation is to use high-quality seed varieties, high-tech technologies and high-performance techniques to ensure the performance of technological operations. Another factor in increasing productivity is the use of machine power, the widespread use of Khorizian techniques that adapt to the soil and climatic conditions of the localities. Potato cultivation has helped to optimize the area and increase the productivity of small, compact machinery and increase crop yields.

In our study, we found it necessary to note the following as scientific innovations. They are:
- Development of a design scheme of the machine before planting potatoes in the soil;
- To obtain analytical equations expressing the process of interaction of the excavating part with the soil-lump mixture;
- To provide analytical connections that allow to determine the design parameters and operating modes of the proposed excavator working part;
determine the laws of change in terms of the quality of soil compaction, the speed of the unit and the installation angle of the excavator;
- The acceptable values of the parameters of the working part of the driver and the mode of operation are determined and put into operation.

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