GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 10, Issue 4, April. (2022)

TECHNOLOGY OF POTATO CULTIVATION

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ABSTRACT

There is information about the most common types of potato growing technologies, their advantages and disadvantages, techniques used in the implementation of technologies, ways to increase potato yield.

Keywords: Potato, soil, soil-climate, agricultural crops, potato growing technology, operation, plow, chisel, cultivator, cotton, furrow, yield.

INTRODUCTION

The basis of high-culture farming, which provides high and quality products from agricultural crops, should be the correct use of biological properties of plants, local soil fertility and climatic conditions, as well as science-based agricultural technologies. At present, the modern technology of potato cultivation is based on the following: selection of potato species and varieties with valuable economic and biological characteristics in accordance with local soil and climatic conditions, crop rotation, selection of past crops for planting, tillage system, fertilization, seed, seed preparation, sowing method and timing, sowing norm and planting depth, protection from weeds, diseases and pests, crop care, harvesting and initial processing, as well as the system of machines used in their implementation, etc. Methods and materials. The research uses the methods of analysis, synthesis and comparison of general scientific methods. Research results. Dozens of potato growing technologies have been developed and are being used around the world. The most common of them are traditional, "Zavorov", Dutch, Western European, in the grooves, Rush-belt potato growing technologies [1]. The following is information about some of the operations performed on potato growing technologies and the machines used to perform them (table). The "traditional" technology of potato cultivation is widely used in the 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 deeply softened layer. To do this, in the spring the soil layer is 10… 14 cm. softened at depth, equipped with overturned housings or machined with chisel plugs. Germination is obtained, the seeds are shortly 6… 8 cm. planted to a depth. Technology

width of rows of potatoes 70 cm. designed for use in a complex of 4 rows of machines for planting and maintenance.

This technology is technically well-equipped, but it has serious drawbacks: in the care of the crop, the soil is compacted as a result of repeated intrusion of aggregates into the pile, during maintenance the seedlings are injured, the stems rise to the surface and sprout. However, when technological discipline is followed, each hectare of land regularly yields more than 150 quintals [2]. "Zavorov" technology of potato cultivation includes a complex of agro-technical, seeding and organizational measures, and provides for the timely, high-quality implementation of these measures. [3] and 27-30 cm with plugs equipped with overturned housings. re-plowed at depth. In order to get the sprouts, the cultivators are placed on two, three tiers of axillary teeth instead of the ditch-opener-soil extractor working parts and are equipped with novsimon seed conductors. The back-mounted three-tiered axillary tooth takes an oval groove in the loosened soil. The basis of the "Dutch" technology of potato cultivation is the use of high quality seeds, chemical treatment of arable lands and strict adherence to technological discipline. A distinctive feature of this technology is that during the care of crops, they are treated several times (up to 7-10 times) with different drugs and herbicides, minimizing the number of mechanical tillage, preventing soil compaction and ensuring optimal soil structure during the season. is In this case, instead of plowing, raking and cultivating the soil in autumn, the soil should be 14… 18 cm with the help of a vertical milling cultivator. The height is 8… 10 cm using spherical discs of a 4-row potato planter. width 30… 35 cm. sprouted, seeds 4… 5 cm. planted at depth. Between the ridges, a layer that is softened but not exposed to the aggregate is left, which is then used to form a high ridge during the maintenance process.

TT/P	The name of the operations performed on the technology	Name of crop technology and model of machine used	
		Traditional	Holland
1	The width between the rows of potatoes is cm	70	75
2	Sprinkle with organic fertilizer	Poy-6	-
3	Sprinkle with mineral fertilizers	Hpy-0.5	ЗА-М Max 150
4	Deep loosening of the soil	ГНУ-1МС	С-100А
5	Autumn plow	ПЛП(ПЯ-3-35)	С400Ф
6	Moisture Prevention u-n raking	БЗСС-1,0	-
7	Cultivation before planting	КПС-4	-
8	Getting rid of it	КРН-2.8	РСФ2000
9	Planting and application of mineral fertilizers	КСМ-4	-
10	Processing before sprouting	КОН-2.8	-
11	Processing after sprouting	КОН-2.8	-
12	Double grounding	КОН-2.8	-
13	Pest control	ОВҲ-600	УГ-3000
14	Cleaning the stems	КИР-1.5	РСК2000
15	Harvesting the crop grown	КТН-2	АВР variyat 220Б
16	Cleaning into containers	Using slave power	-
17	Harvesting	2ПТС-4	2ПТС-4
18	Separation of the crop into varieties	КСП-15Б	ПМСК-50
19	Placement in a warehouse	ТЗК-30	ТЗК-30

The disadvantages of this technology are the high cost of chemicals and aggregates, as well as the high energy consumption of the operations performed. The "Western Europe" technology of potato cultivation is designed for growing potatoes on fertile soils and rocky soils, and in the CIS it is called "Grimme" technology. The main technological operations that ensure the effectiveness of this technology are the cleaning of the soil layer where the potato tubers are located from stones and lumps and the softening of the soil layer below without formation, as well as the use of chemical methods to control weeds. Preparation of soil for planting is carried out in two stages. First of all, the depth of the tractor should be 25-30 cm in width equal to the distance between the wheels. The edge is obtained, at the same time 10–15 cm with soil softening teeth. softened to a depth of 140 cm in width. which is formed by the pile. Then, using a stone-cutting machine, the pieces and stones are divided into three fractions: small-sized soils pass through the holes of the machine elevator and are thrown back on the pile again, the size of 30-100 mm. Stones, lumps and other foreign objects are thrown to the edge formed during the formation of the pile (to the edge of the tractor wheel) by means of a transverse conveyor of the machine, size 100 mm. logs and stones larger than are collected in the machine bunker and then collected at the 'turning platform' and taken out. To do this, it is usually taken in the fall or spring. The main disadvantages of Grimme technology are the increased cost of using machines to clear the land of stones and lumps and move them out of the field, and the high energy efficiency of the technology. The technology of cultivation in the furrow (row spacing 90 and 75 cm) is based on the use of new complex machines. This technology is applied to the plowed lands in the fall in two stages in the spring: 10–15 cm with a soil cutter. gross processing at depth and plowing areas 25-27 cm. softening at depth and providing a groove. Agricultural machines and combines aggregated to Class 2 tractors are used to perform technological operations. This technology of growing potatoes: the width of the row spacing is 90 cm. for "Eurotechnika" of Russia, and for 75 cm (Europe) with the help of techniques developed at the enterprises of Kolnag, Germany (Table). This technology will dramatically increase the yield of potatoes compared to traditional technology, reduce contamination of harvested potatoes and their injuries by 1.5-2 times. But it requires more use of chemicals and strict adherence to technological discipline. "Pushta-tape" technology allows the potatoes to reach a height of 35 cm in conditions of insufficient moisture. 100 + 30 cm for piles with a width of 140 cm. intended for planting and cultivation according to the scheme. The best conditions for the development of potatoes are created in the bush, that is, in a short-term drought - allows to accumulate moisture reserves in the soil, and in the rain, it provides good escape of excess moisture from the soil where the buds are located. creates favorable conditions for harvesting by mechanization. When cultivating the soil between rows of potatoes planted on the ridges, the soil near the root of the plant is less compacted, the roots are relatively less injured, the stakes do not interfere with the passage of the aggregate. However, when harvesting potatoes grown on the ridge, the working parts of the combine are loaded with more than 30-40% of the cultivated soil. In this technology, before plowing, the soil is deeply plowed with plows equipped with cultivators, cutters or cultivators without overturning, and after plowing, another 40 cm is applied to it with the help of a chisel plow. processed at depth. The main disadvantage of this technology is the lack of special aggregates that carry it out in production, the unsatisfactory quality of the shape and condition of the pile in light soils. The potato growing technologies

described above are almost never used locally. Because they are designed for growing potatoes in large areas and mainly for the use of high-yielding, comprehensive techniques. The application of these technologies in the local context may not be effective. Because in the local conditions, potatoes are grown mainly on small contours (0.5-5 hectares) of farms and dehkan farms, on the basis of technology using manual and mechanized means. The mechanized technology of potato cultivation is designed for use in a complex of 4 rows of machines for planting and maintenance in a row width of 70 cm. In the implementation of this technology is planned to use 20 ... 22 types of machines

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