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METHOD OF CHANGING THE PARAMETERS OF THE PLOWING DEVICE LEMEX

Alimnazarov Olim*; Abduxoliqov Alisher; Shamayev Yigitali*****

*Head Teacher,
Termez Engineering and Technology Institute,
UZBEKISTAN
Email id: olimbekalimnazarov12@gmail.com

**Assistant,
Termez Engineering and Technology Institute,
UZBEKISTAN

***Assistant,
Termez Engineering and Technology Institute,
UZBEKISTAN

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ABSTRACT

In agriculture, it is necessary to improve its quality by processing the soil and improving the soil fertility of the land plots intended for cultivation, since any agricultural machine is used to increase the soil fertility of the land plots allocated for the cultivation of a particular product. Our experiments were carried out on the territory of the Jarkurgan District of the Surkhandarya region for the cultivation of one type of product. For cultivation of potato crop, the experiment was carried out on the ground field "Romana" potato variety was selected. Based on our experiments, we used two types of Lemex for plowing devices, namely the current lemex and the lemex, which are recommended for the experiment in the process of soil tillage, and analyzed the efficiency of soil tillage.

KEYWORDS: *Lemex, Land Area, Potato, Plowing Device, Mathematical Analysis.*

INTRODUCTION

Today, in the world, various food products are grown in agriculture, in particular, in the process of cultivation of potato crops, land plots are prepared, for this purpose, the fields emptied from autumn crops are thoroughly watered, after plowing they are made boron(Alimnazarov Olim, Shamayev Yigitali, 2021) **[1].**

The main part of the potato product grows under conditions with high humidity, and 70 – 75% of the product they give consists of water. The potato node contains 25% dry matter, 14 – 22% starch, 1,4 – 3% protein, wood around 1%, 0,3% fat and 0,8 – 1% Ash and various vitamins. The root is 30 cm, then penetrates a distance of 50 cm. Potato tubers make up 8 – 10% of the terrestrial stem. The stem is well formed in light coarse soil, therefore, we chose two different types of "Lemex" for a tractor of one type and its plowing device to improve soil quality during agro technical processing on crop areas for the cultivation of this potato variety. The experiments

were conducted in the Jarkurgan District of the Surkhandarya region in practical conditions. To increase the yield of agricultural products, agro technical processing of the soil before planting is considered necessary (Alimnazarov Olim, Nomozov Jasur, 2020) **[2].** The main emphasis in soil processing should be placed on protecting the soil, maintaining its fertility, if possible, restoring it(Mari J.A, Tagar A.A, Chandio F.A. and Hanif M., 2014) **[3].** For this purpose, it is necessary to use both traditional and rational use of resources methods of soil tillage.

When working with any agricultural machinery, it is necessary to choose a machine equipped with a working part, which will be affected by the method that is suitable for the condition of the soil in local conditions.

In the process of agrotechnical plowing into the soil, using the tractor and its plowing device, "Lemex" in the plowing device performs the main task when driving the soil at a depth of more than 30 cm, that is, when processing the soil with plow, it separates the layer of soil from the edge. Experimental studies justified the depth of processing at the 10 – 12 limit. The width of pulling 5 cm and angle is between 7,5-10 cm. Economic tests have shown that the developed front plow reliably performs the specified technological process and its performance indicators meet agrotechnical requirements(Uktam Umurzakov, Farmon Маматov, Bakhadir Mirzaev, 2021) **[4].** In this process, during the experiment, the mechanical components of the crop area soil allocated for potatoes were conducted on a tractor of the brand MTZ Belarus 1025.2 on a simple light sandy soil based on external signs. Technical characteristics of this tractor: the working width is 2790 mm, the length is 4120 mm, the height is 1970 mm and the weight is 3750 kg, the capacity is 107 horsepower, that is, 79 kW, and the fuel capacity is 130 liters. The tractor engine is economical, that is, the priority of the working life is provided. Its plowing device is characterized by the coverage width of the plow body, plow depth, angle of inclination of the lemex plug to the plow wall, and angle of inclination of the lemex to the bottom of the plow, as well as The Shape of the working surface. The coverage width of the hull in ordinary plumbers can be mainly 30, 35, and 40 cm, in special plumbers up to 45, 50, 60, and 75 cm. The reason for the production of many types of enclosures, the width of which varies among themselves, is the need for plowing the land areas at different depths, depending on the local soil conditions and the type of crop being planted. The maximum driving depth should not exceed 79% of the body coverage width, that is$b$=1,27a_{max}. So, studies a=27 cm show that it is assigned a depth plowing if b=1,27a = 1,27 · 27 = 35 cm$a$=30 cm is required, then b= 1,27 · 30 = 40 cmindicates the need to use a plow mounted on the body.

The plowing device is depicted on the body part (Figure 1). According to him, lemex cuts off the soil layer from the bottom separate it from the ground, and passes it to the slab. In the process of work, the dense soil is silenced with great pressure along the surface of the lemex, as a result of which its teething is quickly eaten, becoming impenetrable and narrow. The resistance to the drag of the impassable lemexplowder can sharply increase by up to 30%. The shudder, whose lemex remains impenetrable, not only increases drug resistance, but also makes it difficult for him to sink to the appointed depth, and smooth movement is not ensured.

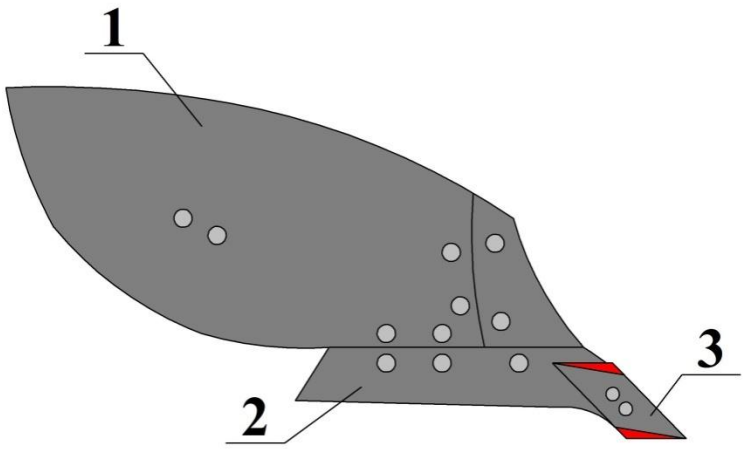


Figure 1. Body parts: 1) agitator; 2) lemex; 3) dolota

The form of Lemex is selected according to the type of plowing soil. Since there are a lot of types of soil, lemex also has different forms: trapezoid, nebula, triangular and other species.

Lemex is considered resistant to ingestion under the influence of abrasive elements contained in the soil.

It is known that the coefficient of friction of the soil with the soil is 1,5 – 1,8 times greater than the coefficient of friction of the soil on steel, so the drag resistance of the plow increases. For this reason, depending on the application of this type of lemex in the treatment of light-grained soils, its durability was increased by the thermal treatment of its material. As a result of this, the introduction of lemex into agriculture is considered to be more robust than the current lemex used in local conditions.

Materials and methods

In the plowing, that is, in the cultured land, in the local lanes, the plowing is overturned by turning the powder up to 130° – 140°. In the process of processing, where the turning angle is greater, large cuttings are formed according to the structural structure of the soil. This is considered ineffective in the cultivation of potato products. We changed these indicators in the course of the experiment to 120° – 130°, as a result of which we took into account the presence of abrasive elements that cause the ingestion of lemex of the plowing device in the composition of light sandy soils, depending on the composition of the soil (Bogunovic, 2017) **[5].** In the process, we subjected lemex to thermal treatment and increased its resistance to ingestion. As a result, we achieved a rapid ingesting of the lemex tic portion.If the process of ingestion is observed on the part of the lemextig, various tensile forces are formed in the process of agrotechnical processing of the tractor into the soil, which causes a lot of waste of fuel.The following experiment showed an effective result on light sandy soil.

Agricultural tractors are considered to be important in this process. Improving all the physical properties of the soil is very important for optimizing work efficiency and fuel consumption. In the process of agrotechnical processing, plowing operations on agricultural machines are as follows:

•Return the used soil to the bottom so that it is delivered, through which the surface that serves as the main nutrient is treated with soil;

•Transfer to the bottom of the mineral fertilizer on the soil surface and through this increase the amount of nutrients contained in the soil.

In agriculture, tractors are widely used in the preparation of various tasks, in particular, bringing the soil to the desired quality in the processing of the soil, increasing its productivity and the process of seasonal cultivation of cultivated fields(Karimi I., Seyedi S.R.M. and Tabatabaekoloor R., 2012) **[6].** The range of work performed in this process is carried out by plowing the surface foundation layer of the soil based on a certain depth. In such cases, fuel consumption in tractors varies depending on soil composition, soil moisture, machine type, and volume quality.

The amount of moisture is inversely proportional to the depth of the forces of the soil. The moisture and depth of the soil condition affect the power that the tractor consumes. Soil tillage is the process of creating favorable conditions for planting and improving the quality of the soil for its germination and feeding the plant roots of the soil with the necessary amount of oxygen. As a result of processing into the crop area with the help of a plowing device, such properties as the physical condition of the soil, porosity, and penetration of the soil are improved. Therefore, we conducted our research in the Jarkurgon District of the Surkhandarya region on the ground floor of the experiment prepared for the cultivation of potatoes of the Romana variety.

Experimental work was carried out taking into account some physical properties of soils in the cultivation of these potato varieties. Table 1 shows some physical properties of Central Asian soils.

TABLE 1. SOME PHYSICAL PROPERTIES OF CENTRAL ASIAN SOILS

Types of soil	Volume weight, g/cm^3	Specific weight, g/cm^3
Light	1,1 – 1,3	2,63 – 2,67
Medium	1,4 – 1,6	2,60 – 2,65
Heavy	1,7– 1,8	2,68

One of the properties that determine the moisture content and air capacity of the soil is porosity, it is determined on the following (1).

$$A=\left(1-\frac{\nabla}{\Delta}\right)\cdot 100\% \qquad (1)$$

Here, ∇ –volume weight of soil;Δ –comparative weight of soil.

The amount of soil density depends on the type of mineral and organic substances that are part of the soil. For Mineral soils, its value varies from 2,4 to 2,8 g/cm^3. The density of soils is used to determine the porosity of the soil and its full wetness.

The density of soils is 0,9 – 1,8 g/cm^3, depending on the mechanical composition. Soil porosity- is equal to the sum of the volume of all porous in the soil and is measured in percent relative to the total volume of the soil.

Soil porosity is divided into capillary and no capillary types. Capillary porosity will be equal to the volumes of voids between the capillaries of the soil.Nocapillary porosity is equal to the size of large gaps. The sum of the porous species is the total porous and is determined by (2) below.

$$A=\left(1-\frac{\gamma}{\mu}\right)\cdot 100 \qquad (2)$$

Here, γ – volume weight (soil density); μ – density of solid phases of soil.

Mechanical characteristics

Fuel consumption. Processing length (for sample 100 meters distance) is determined by the fuel consumption (3) which goes to work(Asharifi, S.K., 2009).

$$Q=\frac{R\cdot 1000}{W\cdot D\cdot 100}, \quad L/ha \qquad (3)$$

Here, Q – consumed fuel, L/ha; R – (100 m) soil processing length consumable fuel; W – machine width (m); D – soil processing length (100 m).

Practical speed: the depth of soil tillage and the practical speed of soil tillage were determined in the experiment. The processing depth for the soil was repeated three times for a distance of 100 m depending on the moisture content of the soil and was determined by the practical speed (4) using this equation(Alsharifi, S.K., 2009).

$$v=\frac{3{,}6\cdot d}{t}\, km/hr \qquad (4)$$

here, v – practical speed km/hr; t – practical time hr.

Theoretical speed: without plowing the soil, only the device touches the soil at a speed of 3 *km/hr* during soil processing, and for a distance of 100 m the depth of processing to the soil moisture was repeated three times. The theoretical speed calculation was determined by the following equation:

$$V=\frac{3{,}6\cdot D}{T}\, km/hr \qquad (5)$$

here, V – theoretical speed km/hr; T – theoretical time (hr).

(6) with the help of the equation, the calculation of the silage percentage was performed as a result of practical and theoretical speed:

$$S=\frac{V\cdot v}{V}\cdot 100\ \% \qquad (6)$$

(7) with the help of the equation, the calculation of the percentage of power spent as a result of silencing is performed(Asharifi, S.K., 2009) **[7].**

$$P=\frac{F(V\cdot v)}{270}\, kw \qquad (7)$$

here, P – expended power (kw)

Machine efficiency

The efficiency of the machine is the ratio of the power that the machine spends for processing for a certain period of time to the theoretical consumable power of the machine(Alsharifi, S.K.A. Mousa, A. and Manhil, A.T., 2019) **[8].**

Theoretical size of the machine. The theoretical size of the machine – this working speed uses the full width of the device and the time of departure and is determined by (8) as follows:

$$T=\frac{S\cdot W}{C} \qquad (8)$$

here, T –theoretical size of the machine;S –speed used;W –cutting width of the tool;C – coefficient of exchange.

The effective size of the machine is the actual stage of performance of the work and it is determined by (9) as follows(Oduma, O. Igwe, J.E. and Ntunde, D.I., 2015). [**9]**

$$E=\frac{A}{T} \qquad (9)$$

here, E –effective size of machine;A –distance (*hr*);T –time (*hour*).

The calculation of the efficiency of the machine is determined according to (10) as follows.

$$F=\frac{E}{T}\cdot 100\% \qquad (10)$$

Harvest and its components

Percentage of potato germination. Potato germination considering that the feed of agates is 60 cm, Agate should contain up to five potato germination at a distance of one meter.

Plant height. The height of the potatoes is measured by a ruler from the soil and this is repeated three times until the harvest is ready.

Potatoes with a weight of 1000 kg. For ten potato tubers, random samples were taken, taking into account that the weight of the potato crop in one meter is an average of 5 kg, the theoretical calculation requires an average of 50 square meters of land for 1000 kg of potatoes.

•**the amount of potatoes in a bush.** If we take as an average of 4 pieces of potatoes in a bush seed theoretically, then for ten Bush random samples make an average of 20 grains.

•**potato yield.** Random samples if we take an average of 4 pieces of potatoes in a bush seed theoretically, random samples for ten Bush per meter were an average of 20 grains, which made it possible to save the land area and grow more potatoes than in the previous method of planting.

Physical properties

Physical properties of soils were determined, six randomly selected area soil samples were obtained by the tractor hydraulic fixture with a diameter of 10, 14 and 18 cm for the three processing depths identified in the experiment. In soil samples of different depths obtained in the experiment, 12 – 14% humidity was determined(Behzad, S. Ahmad, G.A., 2014). **[10]**

Soil moisture: Samples were taken to measure soil moisture. Surface layer, soil samples of 10 cm, 14 cm and 18 cm were taken and dried in an oven of 105^{o}C. The moisture content of soil samples is determined according to the following (11) (Dehroyeh, M., 2015). **[11]**

$$W=\frac{\propto}{\beta}\cdot 100\% \qquad (11)$$

here, W –percentage of soil moisture;$\propto$ –wet soil weight;β –dry soil weight.

Density of soil mass: To measure the total soil density, three different soil samples were collected from parts of the Earth. The collected samples were dried at 105 ^{o}C for 48 hours. The mass of dried soils was weighed on the scales, the density of the soil mass was determined according to the following (12) (Langston, A.S., 2014). [12]

$$P=\frac{M}{V} \qquad (12)$$

here, P –density of dry mass (mg/m^3);M –dried soil sample weight (mg);V –the total volume of soil sample (m^3).

General porosity of soil. Determination of the total porosity collected for each of the soil samples was calculated using the following equation, the approximate particle density 2,65 mg/m^3. The general porosity of the soil is determined by (13) as follows(Anna, J. Helfrich, M. Hanisch, S. Quendt, U. Rauber, R., 2010). **[13]**

$$T=\left(1-\frac{P}{S}\right)\cdot 100\% \qquad (13)$$

here, T –total porosity of soil (%);P –the density of dry mass (mg/m^3);S –partial density (mg/m^3).

Lemexes and their materials

The most important direction in increasing the technical level of soil processing machines is to increase the reserves of their working bodies(Петровский, Д.И., 2015).

When grinding the soil with agricultural machinery, its parts are ingested due to the friction force, so their introduction or complete repair is required. In the process associated with increasing the priority of machines working bodies and spare parts is necessary to determine the legislation of their ingestion. In this process, there is a need to develop a framework for calculating the strength of working bodies.

The work surfaces are determined by the relative form and nature of the grinding of the particles, depending on the ingestion, under the influence of friction with abrasive particles in the soil and the relative speed of movement. The wear-out nature of the parts of the working bodies of agricultural machinery depends on the soil conditions and the resulting pressure of the soil on the working surface(Severnev M.M, Podlekarev N.N., Sokhadze V.S., Kitikov O.V., 2011) **[14]** and (Blokhin, V.N., Prudnikov S.N., Parshikova L.A., 2015). **[15]**

The results of the determination of the absorbent particles contained in the soil and their ingestion under the influence of friction by the relative speed of movement showed that lemex is proportional to the pressure of the soil on the working surface in relation to the impact.

$$I=k\cdot N \qquad (15)$$

here, k –proportional coefficient;N –normal strength.

Depending on the speed of movement of the abrasive particle, the equation of ingestion of lemex is expressed.

$$I=\mu\cdot V \qquad (16)$$

here, μ and b are the constant coefficients associated with the physical and mechanical properties of the soil.

The result of the study showed that in order to achieve the performance life span of the replaceable components of agricultural machinery, in terms of their surface finish and economic efficiency, it was required to increase the strength of its thermal treatment to the working surfaces and its bikriness to external influences(Канаев, А.Т., 2018).

Comparing the results of thermal treatment of the samples made of 65G steel material to the surface layer studied in the experiment with the results of five options, taking into account the characteristics of high strength and plasticity for the variable parts in the heavily loaded effect of the working parts of the machine tools for cutting into the soil, we have(Алимназаров Олим Менглибоевич, Шамаев Йигитали Джумаевич, 2020).

As a result of the extremely rapid heating speed that occurs in plasma, its transformation passes to a high temperature, and this thermally active process strongly affects the kinetics of the emergence and growth of new phase nuclei.The link between the degree of nucleation of austenite and the rate of their growth changes, and the increase in temperature, the process of nucleation of austenite occurs faster than their acceleration, and the increase leads to the formation of a small-grained ostenite, from the rate of growth of nucleation, that is, the quantitative increase, and turns into a high-dispersion martensite.

Agriculture requires energy and material up to 45-50% of the consumption of fuel and lubricants. Since the annual consumption of the replaceable components of the working bodies of soil-processing machines in agriculture is high, it is important to reduce the operational costs in the soil-processing process and to increase the tolerance to external influences, and to reduce the cost of spare parts, as well as to increase the level of competitiveness.

In the process of soil tillage in agriculture, it is necessary to ensure the durability of the product material at the level of 1500 – 1800 MPa. The impact strength should be at least 0,8 – 1,0 MJ/m and the possible maximum surface hardness should correspond to the values of 60 – 65 HRC(Шилов И.Н. и др., 2010).

The replaceable parts of the working bodies of agricultural machinery are traditionally made of st6, U8 and other steels with medium or high ugler capacities. The plowing device, which is part of the replaceable parts of the working bodies, whose surface hardness is increased in plasma, is made of lemexi 65G manganese steel, the chemical composition of which is given in Table 4.

TABLE 4. CHEMICAL COMPOSITION OF LEMEX MATERIAL (%)

C	Mn	Si	P	S	Ni	Cu
0.63	0, 1.2	0.35	0.031	0.029	0.25	0.19

Mechanical properties of the steel material, which is treated with a hardening temperature (hardening up to 800 – 820 ^{o}C). The process after lubrication (cooling in the air up to 340 – 380 ^{o}C) is shown in Table 5.

TABLE 5. MECHANICAL PROPERTIES OF 65G STEEL DEPENDING ON THE TEMPERATURE HEAT

Test temperature, °C	σ, MPa	δ, %	γ, %	$\sigma_{0,2}$, MPa
Oil hardening in the range of 830 °C. Cool in the air in the range of 350 °C				
200	2200	15	44	1370
300	1670	19	52	1220
400	880	20	70	980

TABLE 6. MECHANICAL PROPERTIES OF INVESTIGATED STEEL

σ_T, MPa	σ, MPa	δ, %	γ, %	HRC, mm
1220	1470	5,0	38	49

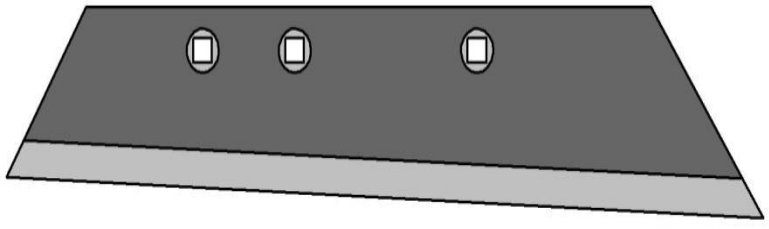
TABLE 7. THE MEASUREMENT RESULTS ARE SUMMARIZED

	Sample order number					
	1	2	3	4	5	6
Working surface, HRC	48,1	50,1	50,7	49,7	48,9	49,2
Back surface, HRC	47,9	50	49,8	46,4	47	46,3

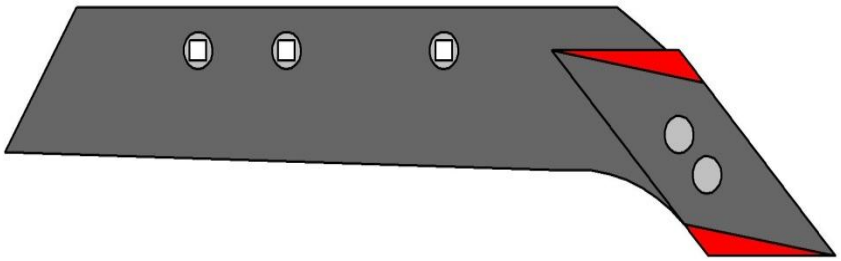
The working surface hardness of lemex is 49 in the range of HRC values ... If it is equal to 51, the reverse side hardness is 46 in the range of values HRC... It will be equal to 50.We can conclude that the hardness of the working surfaces is due to abrasive particles of the soil environment and the phenomena of hardening of this surface in the influence of plastic deformation. 750... At an incomplete temperature at 770 °C, the steels are subjected to thermal treatment by heating the hypoectoid, then 150 ... Increased hardness at low temperature with a temperature of 200 °C(A.M. Михальченков, В.Ф. Комогорцев, Д.А. Капошко, 2004) **[16]** and (A.M.Михальченков, 2012) **[17].** Uneven ingestion of lemex on the working surface is explained by the difference in soil pressure, but this phenomenon can be due to the difference in mechanical properties in certain areas of the working surface.

Results

In order to solve the existing problem on the basis of the research, we selected the potato variety “Romana” in the field of experimental land of Jarkurgan District of Surkhandarya region and used two types of “Lemex” for plowing equipment, namely the current lemex and the lemex recommended for experiment in the process of soil tillage (Figure 2) and analyzed the effectiveness of soil tillage.



a)



b)

Figure 2. Lemex: *a*) current lemex; *b*) recommended lemex for experimentation

The methods of mathematical statistics were used to determine the effectiveness of the results obtained in the above studies and to prove the ideas put forward and to process the results of the experiment. One of the methods of Mathematical Statistics Styudent statistics was used in carrying out the work carried out in our research work. For the purpose of comparing the effectiveness of current and experimental lemeches, the average value of potato yield yield is obtained according to (1):

$$\overline{X}=\sum_{i}^{N}\frac{X_i}{N} \qquad (1)$$

In the analysis of the experimental work in four stages, the following mathematical statistical formulas were used:

The first stage. (2) and (3) indicators for determining average values.

$$\overline{X}_{\tau}=\sum_{i}^{N}\frac{X_i m_i}{N} \qquad (2)$$

$$\overline{X}_{\sigma}=\sum_{i}^{N}\frac{X_i m_i}{N} \qquad (3)$$

Here X_i – is an indicator of samara, they accept 3 (satisfactory), 4 (good), 5 (excellent) values. m_i– is the number of repetitions of the work process, N – is the number of samples involved in the experiment.

(4) and (5) represent selective dispersion in experimental – test cases.

$$S_{\tau}^2=\sum_{i}^{N}\frac{m_i(X_i-\overline{X}_{\tau})^2}{N} \quad (4)$$

$$S_{\sigma}^2=\sum_{i}^{N}\frac{m_i(X_i-\overline{X}_{\sigma})^2}{N} \quad (5)$$

The second stage. (6) the average value evaluating the productivity efficiency of potato product is the ratio of the average arithmetic values of the current and experimental lemex, that is, the effective coefficient.

$$\eta=\frac{\overline{X}_\tau}{\overline{X}_\sigma} (6)$$

Here, $\overline{X}_\tau$ –effective average arithmetic value of current lemexes;$\overline{X}_\sigma$ –effective average arithmetic value of experimental lemexes.

The third stage. (7) and (8) the unknown middle values of the head bundles are confidence intervals for a_τ and a_σ:

$$a_\tau=\left[\overline{X}_\tau-\frac{t}{\sqrt{N_\tau}}\cdot S_\tau;\quad \overline{X}_\tau+\frac{t}{\sqrt{N_\tau}}\cdot S_\tau\right] \qquad (7)$$

$$a_\sigma=\left[\overline{X}_\sigma-\frac{t}{\sqrt{N_\sigma}}\cdot S_\tau;\quad \overline{X}_\sigma+\frac{t}{\sqrt{N_\sigma}}\cdot S_\sigma\right] \qquad (8)$$

here, t –the probability of confidence in the normalized deviation is determined on the basis ofβ. For example, if we takeβ =0,95, then t=1,96.

The fourth stage. The theory of the equality of the mean values (9) was taken as an anti – dependence theory (10) on it.

H_o:$a_\tau=a_\sigma$ (9)

H:$a_\tau\neq a_\sigma$(10)

In relation to the above theory, we will examine Student statistics (11).

$$T=\frac{|\overline{X}_\tau-\overline{X}_\sigma|}{\sqrt{\frac{S_\tau^2}{N_\tau}+\frac{S_\sigma^2}{N_\sigma}}} \qquad (11)$$

if we adjust the points to the Student statistics, then $T>T_{0,95}(k)$, then H is accepted, otherwise H_o is accepted. Student criterion here is the degree of freedom. To calculate it, the following (12) formula was used:

$$k=\frac{\left(\frac{S_\tau^2}{N_\tau}+\frac{S_\sigma^2}{N_\sigma}\right)^2}{\frac{\left(\frac{S_\tau^2}{N_\tau}\right)^2}{N_\tau-1}+\frac{\left(\frac{S_\sigma^2}{N_\sigma}\right)^2}{N_\sigma-1}} \qquad (12)$$

DISCUSSION

Fuel consumption. At the impact of the soil on the access corners of the plow, the yield showed 9,958, 10,375 and 10,891 *L/ha*. The fuel consumption was reduced as the soil resistance of the shudder was high and the lemex strength recommended for the experiment was ensured.

Percentage of action. As a result of the decrease in the percentage of movement, it has led to an increase in soil tillage distances. In different processing, processing distances were equal to 8.935, 9.653 and 10.682%, respectively. This is due to the fact that as a result of the processing resistance strength of the soil, the processing distances and silage led to an increase in the

coefficient. It was shown that the plow was significantly more effective because the access angle to the soil was reduced and was 9,303% and 10,264% respectively.

Machine efficiency. When using lemex recommended for the experiment, the efficiency of the machine showed an effective result of 14%.

CONCLUSION

As a result of the conducted research, we have been experimenting with increasing soil fertility by changing and adding additions to the parameters of the plowing device of the soil-processing tractor in the cultivation of potatoes of the "Romana" variety in the conditions of the Jarkurgan District of the Surkhandarya region. In the course of the study, we achieved the following results: the quality of the soil showed a significantly effective result as a result of the use of lemex recommended for experimentation in the conditions of the area where the study was conducted. In this process, the fuel consumption and the working bodies of the soil-processing machine are replaced, in particular, the lemex part of the plowing device compared to the working life achieved extended. Therefore, as a result of this experiment, the cultivation of potatoes of this variety on light sandy soils showed an effective result.

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