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THE LOCAL AGGREGATION OF DILUTED FERTILIZERS TO GARDENS AND THE CONSTRUCTIVE SCHEME OF THE WORKING PART

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Abstract: *Therefore, the aim of this study is to develop and study a rotary working body and the technological process of focal introduction of liquid complex fertilizers. As a result of our studies, we obtained the following scientific and practical results: 1. Developed: a new working body and scheme of a machine for focal introduction of liquid complex fertilizers, eliminating the loss of fertilizers by spraying them with working bodies, reducing the metal consumption of the machine due to the refusal to use pumps supplying liquid to the working bodies, and ensuring an accurate dosage of the metering-pumping application rate cameras. 2. The geometric, kinematic and hydraulic parameters of the working body and the machine as a whole are theoretically substantiated. The general picture of the dynamics of the working body is determined. 3. Received high technical and economic performance of the machine. The design of the working body practically does not limit the speed of the unit.*

Key Words: *constructive, composition, diluted, garden fertilizers, diagram, working part.*

1. INTRODUCTION:

The solution to the problem of constantly improving soil fertility and increasing yields is inextricably linked with the ever wider use of chemicals for farming. The fulfillment of this task should go not only along the path of more and more fully satisfying the needs of the land for fertilizers, but also along the path of expanding production and applying new and more effective fertilizers. Equally important is the struggle to save and reduce the loss of fertilizers. All this necessitates the development and research of new methods and means of fertilizer application that fully meet the needs of agriculture. Therefore, one of the main tasks of modern agriculture is the need to more widely introduce methods of local fertilizer application, to drastically reduce their losses during storage, transportation and use.

2. LITERATURE REVIEW:

A review and critical analysis of existing surface treatment tools is given.

The basis for solving the problems of mechanization of soil cultivation was laid by V.V. Dokuchaev, the founder of agricultural mechanics V.P. Goryachkin and the successors of his ideas A.A. Izmail, V.R. Williams, V.A. Zheligovsky, P.M. Vasilenko and others. A large group of scientists fruitfully worked on the problems of mechanization of tillage: P.N. Burchenko, N.K. Mazitov, M.N. Nagorny, I.M. Panov, L.V. Burnt and others. A significant contribution to the study of the processes of mechanization of tillage, the interaction of working bodies with the soil was made by R.K. Abdrakhmanov, A.P. Gribanovsky, A.F. Zhuk, A.P. Inshakov, A.S. Kirichenko, B.M. Kozyrev, A.D. Kormshchikov, N.V. Krasnoshchekoe, A.S. Kushnarev, V.A. Lavrukhin, A.B. Lurie, N.D. Luchinsky, A.I. Lyubimov, P.I. Makarov, I.I. Maksimov, P.V. Mishin, E.P. Ogryzkov, G.N. Sineokov, A.I. Timofeev, V.V. Trufanov and others.

The experiments (A.I. Puponin, V.Z. Mukhametdinov, 1980) showed that the most effective treatment system for winter wheat on sod-podzolic soil of medium loamy composition was surface treatment, including peeling, pre-sowing milling to a depth of 6 ... 8 cm and sowing seeds with a combined unit.

In our country, the development of surface tillage began in Western Siberia and Northern Kazakhstan simultaneously with the development of soil-protective agriculture. For the first time in the country, its principles are most fully embodied in the soil-protective soil cultivation technology developed at the All-Russian Research Institute of Grain Management under the direction of Academician A.I. Barayev. In this case, plane-cultivators, deep-rippers, rotary harrows, disk cultivators and other implements were used.

Shallow surface tillage creates a greater supply of productive moisture in the meter layer. Mulch of the surface layer provides a more complete accumulation of autumn and winter precipitation, reducing water runoff and soil erosion.

This processing method has a lower specific energy consumption, so the tools are more productive by 20 ... 40% compared to ploskorez-deep-rippers. This is especially valuable for short periods of soil preparation for sowing winter crops after unpaired predecessors.

3. MATERIALSAND METHODS:

Object of study. The object of research is the design and parameters of the soil omelet with combined working bodies.

Subject of study. The subject of the study is the mutual arrangement of disk and milling working bodies, the interaction of the cutter with the soil, taking into account the preliminary processing of the soil.

Methodological, theoretical and empirical basis of the study. Theoretical studies were carried out on the basis of modeling the interaction of working bodies with the soil during the operation of the soil thrower. When solving mathematical dependencies, the finite element method was used. Laboratory studies were performed using planning theory. The experimental results were processed using the MathCad 14 program.

In Uzbekistan it is being the average fruit yield is 99 hectares and of the grapes is 60 hectares. However, this pointer is 1, 5-2.0 times less rather than our opportunity of fruit and grapes breeding. The reason of law productivity is not doing perfectly and at the estimated deadline of the technological process in the middle rows of the garden, not giving the mineral and organic fertilizers well and at the planned date, especially not giving them locally. In our republic it was developed the constructor of the scaly working part and principal scheme of it, taking into account hardly any aggregates which can give a local fertilizer to the root system of the middle rows of the garden.

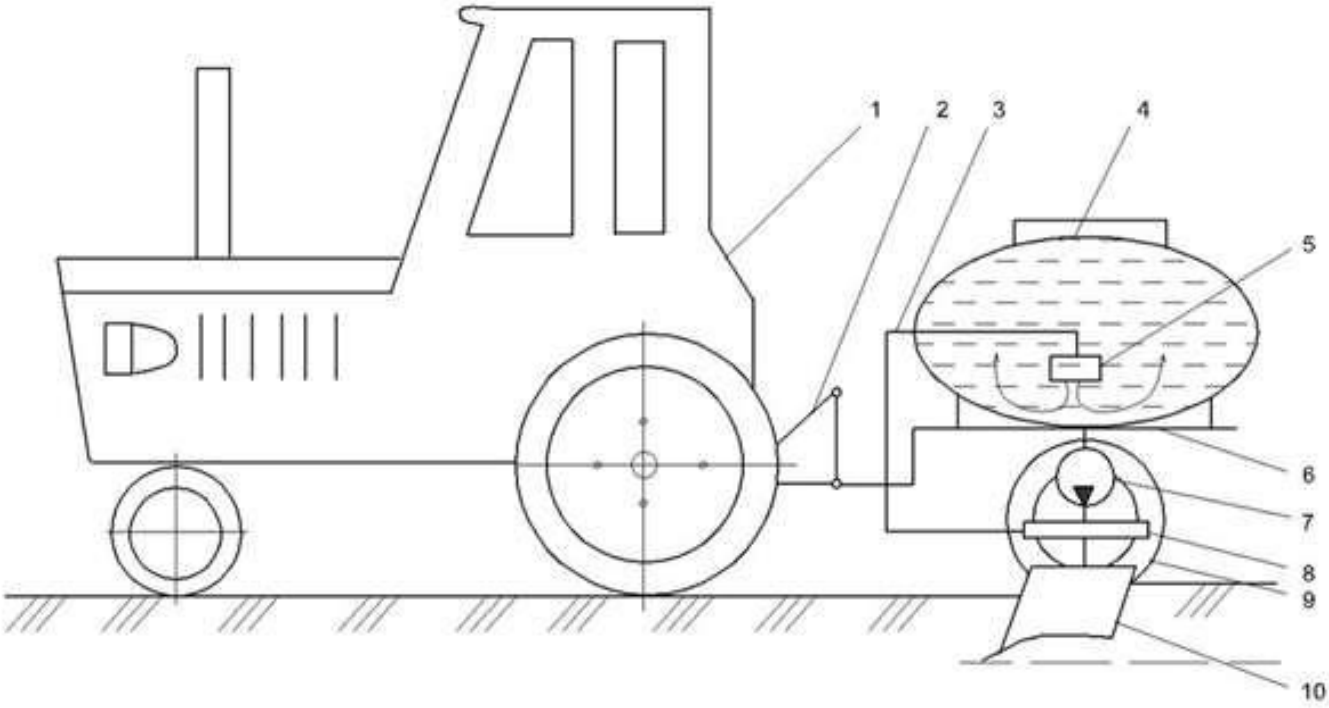

Fig.1. the scheme of aggregate

1. Tractor; 2. Hanging device; 3. Pipe; 4. Reservoir; 5. Mixer; 6. Frame; 7. Hydro pump; 8. Adjusting blog; 9. Base wheels; 10. Scaly worker.

Aggregate is consisted of the tractor 1 which is intended to treat the row interval of the garden and the construction which gives diluted fertilizer locally. The construction is consisted of reservoir4, mixer5, frame6, hydro pump7, adjusting blog8, base wheels9, and the scaly worker 10.

The mechanical scheme which supports to pass regularly watery fertilizer to the working part is shown in the picture 3.2. It includes horizontal disc 1, connecting-rod 2, bow 3, directional 4, spring 5, plank 6, arrow 7, barrier 9 and pipe 10, sterling 11 and 12. Disc 1 move rotationally with a vertical arrow 7. The basic part of the disc 1 was placed constantly sterling 11, 12 and plank 6. It was combined connecting-rod 2 to the sterling 11 and arrow3 to it.

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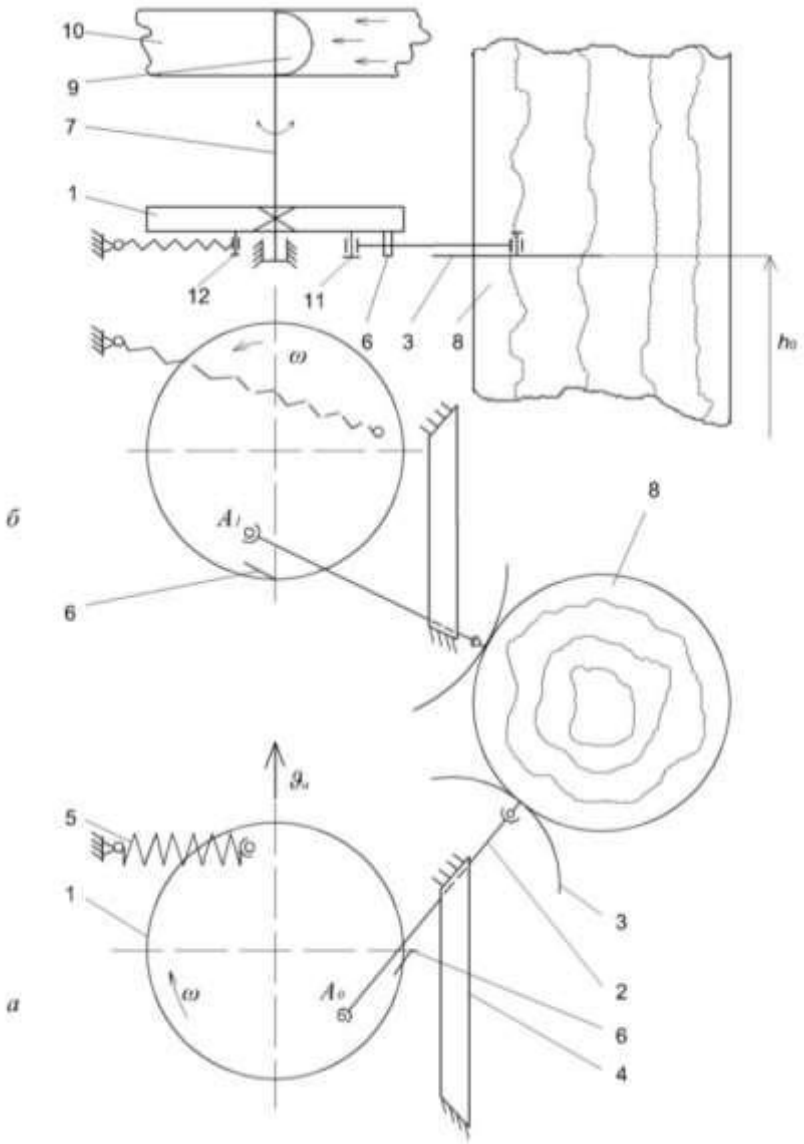

Fig.2. the scheme of the mechanism which passes liquid fertilizer to the working part.
A and B the beginning and ending of the corresponding position collision of the tree part and the mechanic bow
1-disc; 2-connecting-rod; 3-bow; 4-directional; 5-spring; 6-plank; 7-arrow; 8-tree trunk; 9-barrier; 10- pipe.

The action along the horizontal plain of connecting-rod 2 is supported and limited by the directional 4. The spring 5 is connected to the sterling 12. Barrier 9 is combined by arrow 7 and it was placed in pipe 10. The working principal of the mechanism is as following (2 a picture b). The bow3 collides with a tree trunk 8 on moving along the middle part of an aggregate garden. From this time with the help of connecting-rod 2 the disc 1 and arrows 7 begin a rotatory movement on an hour mile. And also the barrier 9 on pipe 10 makes a circular motion with an arrow 7, opens the way of watery fertilizer in the pipe and it is given locally to the indicated place through the working part. This process continues until the separating of the bow 3 from tree trunk 8 and at the same time the spring 5 is extended. From this time of becoming sterling 11 from A_0 to A_1, the spring 5 begins to transform a disc 1 and arrow reversely to an hour mile. The barrier 9 placed in the bow 7 becomes the previous case and obstructs the way of watery fertilizer which is flowing from the pipe. When a bow 3 collides with tree trunk 8, the principle of the working part is repeated again. Local fertilization of the liquid fertilizer is achieved by changing the position of the plank either long or short. The difference between this method from the diluted fertilizer is that the claw which is extracted from the extracted material is removed onto the surface of the field and do not return to the furrow after the diluted fertilizer is poured but remains in the work piece bowl. Meanwhile, the diluted fertilizer is poured out and buried with a claw coming out of the working area. It was given the structure of the working part which performs the local injection of liquefied fertilizer in the picture 3.

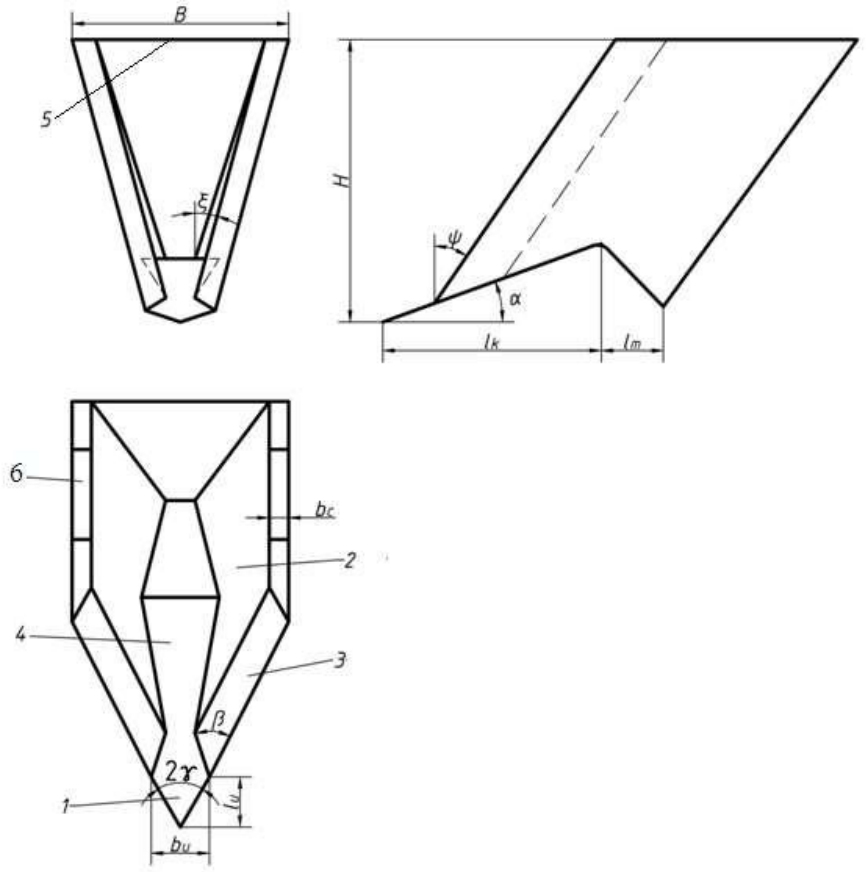

Fig.2. the scheme of the working part

1-Scaffolding; 2- sideways; 3- sharp edges; 4,5- lower and upper bases respectively; 6- the hole above.

The working part for localizing the fertilizer between the rows of the garden consists of scaffolding 1, sharp edges 3 of the sideways 2, the bottom 4 and the upper 5 bases, the hole above 6 and the bottom hole. Fig 3. the sides 2 of the working part acting as a liquefied fertilizer tank is consisted of the lid, bottom, inner and outer walls. The outer and inner walls are placed at a *b* sharp angle relatively to the direction of the aggregate movement. The hole 6 was opened in the cover of the worshipers. The same hole was opened at the bottom of the caves (it was not shown in the fig. 3). The technological process of localization of diluted fertilizers with the working part is carried out as follows (Fig. 4): the working part is adjusted to the working position and set to the marked working depth. Firstly, the claw is cut with a scaffolding and then with the edge of sides.

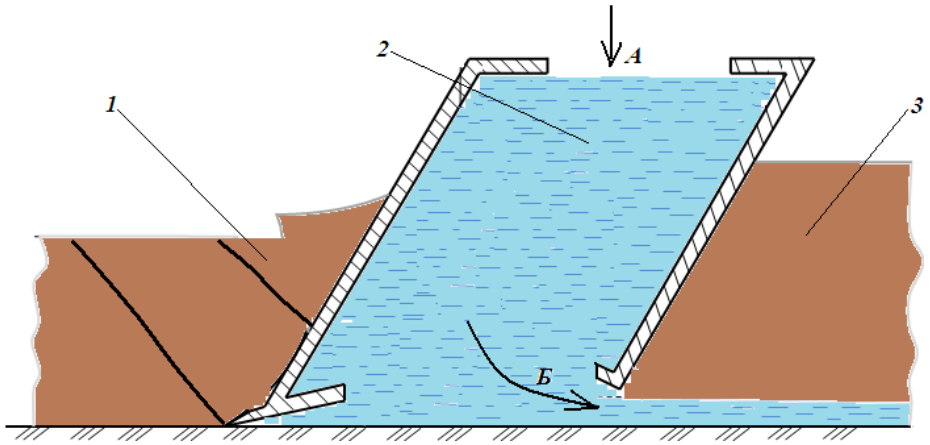

Fig.4. the scheme of the technological working process for localization of diluted fertilizer with the working part.

During the movement of the trimmings, the liquefied fertilizer is placed in the gap between the base of the working piece and the bottom of the furrow from the hole in the bottom of the tank. The laid fertilizer is buried with the soil which falling from the working area. In this way the technological process is repeated. The base of the working part

that's the lower base 4 and the bottom of capacitors forms a cavity with the furrow bottom at an angle *a*. In addition, the cutting claw is expected to be compressed as it enters between the side walls of the work piece, as a result soil heaps may form near it. This process is eliminated by the increase of the working surface as the pullets are raised during the movement of the base of the working part. It can be seen that the shape of the work piece has two functions at the same time, which is why selected by sliding it upwards and creating a gap with the bottom of the fuselage to prevent compression.

4. CONCLUSION:

In the suggested working part, a furrow is created simultaneously, poured diluted fertilizer to its bottom and it is buried.

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