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ADVANTAGES OF IMPROVED WORK EQUIPMENT IN PRODUCING FOOD IN CEREAL FIELDS

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Abstract: The *article mainly discusses the importance of the floor-forming machine and the floor in grain fields, the fact that empty land on both sides of the created floor reduces productivity. In order to prevent this, an improved floor-forming device is proposed. Thus, floors are laid for irrigation of grain fields, divided into sections and replanting is carried out from the sides of the floors.*

Keywords*: Floor, bunker, crop, land, frame, threshing floor, guide, bunker, seed dispersal device, working columns that soften the floor, a seeder that places grain on the ground, a conveyor that delivers grain to the seeder, a trowel that compacts the area around the floors, grain fields.*

The development of agriculture is inextricably linked with the development of science and technology. In the agriculture of our republic, along with cotton growing, grain, vegetable, melon and horticultural products are grown. In order to provide the population and industry of the republic with abundant, cheap and high-quality agricultural products, it is necessary to introduce advanced technologies into production, carry out quality work related to crop care in short agrotechnical terms, and effectively use modern agricultural machinery created on the basis of the latest achievements of science and technology. The urgency of the modernization of agriculture was expressed by the President of our Republic as follows: "When we say modernization, we are often accustomed to understanding the modernization of industrial sectors. However, along with industry, there is a great need to modernize such a leading sector of our economy as agriculture, to carry out technical and technological renewal work in the entire complex of almost all sectors and production sectors that are part of it." These ideas include not only the modernization of the agricultural sector based on imported equipment and technologies, but also important tasks such as the development of existing equipment in our Republic and the introduction of new ones. [1]

Currently, obtaining high yields from agricultural crops is the most relevant topic.

The crop obtained in agriculture is grown due to the absorption of various substances in the soil by the crop.

Figure 1. General view of the floor in grain fields

The following differences are observed in fields without furrows between grain rows compared to fields with furrows:

1. Yield is 15-30 percent lower, depending on the relief and flatness of the field.
2. Water consumption is 20-30 percent higher.
3. Formation of salt flakes on uneven fields.
4. Difficulty in controlling the direction of water in the field.
5. Irrigation duration increases by 1.5-2 days.

There are several advantages of dividing the grain into sections with furrows:

1. Complete and uniform irrigation of the area is ensured.
2. Water waste is reduced.
3. It is convenient to control the water in the field.
4. Sequential irrigation of the cuttings ensures fast and high-quality completion of the technological process.
5. No salt flakes are formed.

The improved plowing unit for grain fields is intended for agricultural purposes, namely for the effective harvesting of crops from the land. That is, after sowing the crops in the fields, they are divided into sections for irrigation. When plowing the fields with a plow, a certain area of free space is created on both sides and the fields are not fully utilized. General view of the device used to plow wheat fields.[2]

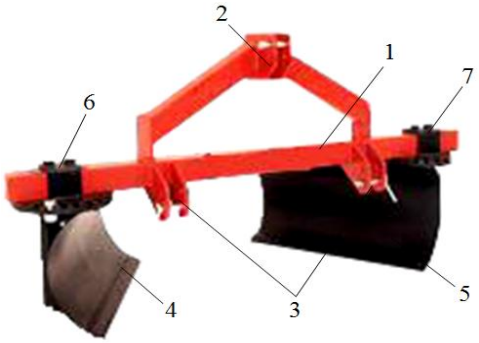

Figure 2. View of the floor forming device

1-frame; 2, 3-suspension device; 4, 5-working bodies with right and left curved surfaces; 6, 7-mechanism for changing the coverage width

The floor-forming device with a curved working body is distinguished by the possibility of changing the coverage width. With this floor-forming device, it is possible to create floors with a base width of 1 meter and a height of up to 0.5 meters, mainly before sowing or in

areas cleared of crops. The device is mounted on tractors with a power of 50 horsepower. The soil is compacted to the center by means of two right and left curved working bodies located opposite each other on the frame of the device.

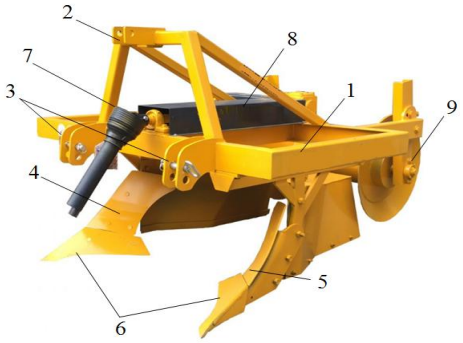

Figure 3. Appearance of the floor forming device

1-frame; 2, 3-suspension device; 4, 5-working bodies that center the soil; 6-lamex; 7-shaft; 8-reducer; 9-compacting roller

The PR-0.5 floor-forming device is designed to create floors 50 cm wide in fields cleared of crops in order to prepare the field for irrigation simultaneously with the current leveling process. In addition, the device is also widely used for leveling floors. This device is mainly aggregated with tractors of classes 4-5.

KZU – 0.3 D is a universal device, which is used for digging and filling temporary irrigation ditches, creating floors on plowed fields and leveling them. Floor-forming works using the KZU-0.3D device are widely used, especially in areas falling into the third zone, when preparing the land for autumn salting. This device is mainly used in fields cleared of crops and autumn plowing. The quality of the floor created by the device is quite high and can withstand the water distributed by the irrigators on small contours during large-scale irrigation (washing the soil from salt).

These devices are used to build transverse and longitudinal floors. Taking this into account, we offer an improved floor-laying unit for these grain crops in order to increase productivity. The advanced leveling device for grain sowing fields consists of the main ram (1), counter-rotating harrows and knives (2), as well as additional sowing equipment - a grain collector (3), a bunker (4), a meter (5), column tines for loosening the soil (6), a seeder for sowing grain into the ground (coulter) (7), a seed conveyor (8) for delivering grain to the seeder and a roller for compacting the soil around the sown crop (9). In the proposed utility model, a tractor with a power of 100-140 hp is selected to solve the problem posed. The front side of the tiller body (2) mounted on the frame of the device (1) is 90 cm, the rear side is 30 cm. The grain in the hopper is collected in the seed collector and distributed there. The capacity of the hopper (4) reaches 250 kg.

The movement is provided by the power shaft located on the side of the seed metering tractor, and the seeds are constantly mixed. The column teeth (6) for loosening the soil serve as a support for the sowing process around the soil accumulation areas and move the soil by

5 cm. To place the seeds on the ground, the seeds are welded to the working pegs (7), which are mixed with the seeds through the spreaders.

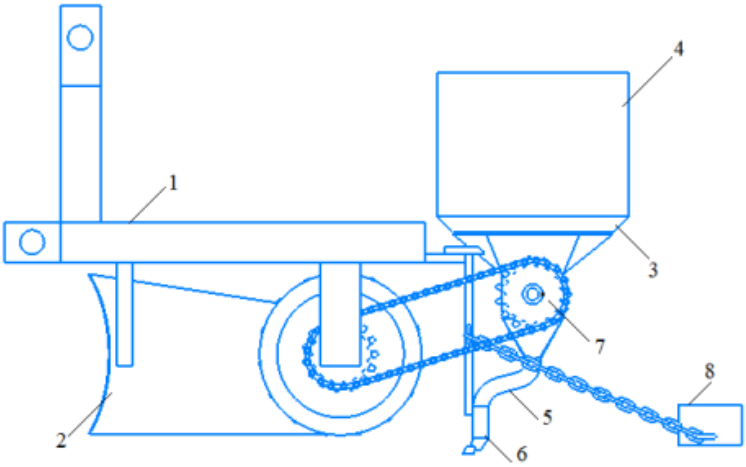

Figure 4. Structural diagram of the device

1-frame, 2-roller, 3-guide, 4-hopper, 5-conveyor, 6-seeder for placing grain on the ground,

7-seed agitator, 8-mole for compacting the soil around the floors.

The delivery of sown seeds is provided by a seed conveyor (5). After the completion of the processes of laying the floor and sowing, the soil compaction process is carried out using rollers (8). Thus, in open areas, floors are laid for irrigation of grain fields, divided into sections, and re-sowing is carried out from the sides of the floors.

The scope of application of the device is to maintain the good condition of fertile lands in agriculture, strictly adhere to irrigation standards, and increase efficiency by re-sowing grain crops on the area left open under the floor. As a result of using the device, it is possible to increase the yield of grain crops by 5-6%.

The reliability of the device is its use in increasing its productivity, quality and efficiency of work, reducing energy consumption and improving land productivity. The device consists of a plowing working body and a grain bunker, a softener, and a leveling trowel. The first working body, the plow body mounted on the frame, piles up the soil and forms a plow, while the grain bunker mounted behind provides the grain in quantity and performs high-quality sowing with the help of a softener and trowel. If a total of 100 kg of grain is placed in the bunkers from 50 kg, it will be possible to sow grain crops under the plow on an area of 10 hectares. The ability to make a plow and plant grain crops under the plow in one pass will be a great help to our farmers.

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