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IMPROVED WORKING EQUIPMENT IN SOIL SOFTENING

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Abstract:

The article provides information about the process of formation of soil clods, measures to eliminate them, and increase work efficiency by using improved working equipment in the process of reducing them.

Keywords:

clump, sprouts, cluster, stubble, deformation, catok, salinity.

It is known that due to the moderate continental climate of our region, it rains from time to time in the spring and autumn seasons. After this natural climatic phenomenon, in the self-sown fields, as the air temperature warms up, crusts (hard layer) are formed on the surface layers of the earth. The formation of thicket occurs not only under the influence of natural climatic conditions, but also after irrigation of the land. The appearance of scurf in the fathers has a negative effect on the development of germinated seedlings, does not allow the full germination of ungerminated seeds, and as a result, the seedlings become sparse.

In order to avoid this, it is necessary to quickly soften the hard soil formed after heavy rainfall before the surface part is mature.

The formation of coarse soil has different forms in different soils. Carbonate plays an important role in the formation of sludge. For example, calcium bicarbonate Ca(HCO3)2 turns into CaCo3 as a result of soil drying. This causes the pests to stick tightly together and form a thicket. In irrigated lands, the formation of clumps in the fields mainly occurs due to the destruction of macro and micro aggregates under the influence of water, that is, as a result of their transition to a structureless state. In order not to become dense, the soil should be rich in humus and have a granular structure.

The cluster model of organizing the production of agricultural products is widely implemented, therefore, in recent years, the area of land allocated to the cotton-textile cluster is 52% of the agricultural land allocated to the cotton crop type. At the same time, the absence of effective market mechanisms in the state support of agriculture does not allow to increase the competitiveness of the sector.

These reforms require mechanization of agriculture and deep processing of agricultural products through the development of large-scale modern financial services and access to quality agricultural machinery. It is intended to eliminate problems such as preparation of high-quality crop seeds, organization and development of primary seed breeding of domestic and foreign selection varieties, including biotechnological varieties, in the productive use of land in agriculture.

Figure 1. A layer of soil formed after precipitation.

Thicket is a hard layer that forms on the surface of the soil after heavy rains and irrigation. In Central Asia, almost all soils of irrigated farming regions are prone to compaction. The

main reason for this is the extremely low granularity of these soils and the soil aggregates are not resistant to water. After rain or irrigation, the upper layer of the earth freezes, and when it dries, it hardens and forms a crust, and the surface cracks. Coarseness has a negative impact on the properties of soil and the development of agricultural crops, slows down the water permeability and air exchange of the soil, and also accelerates the evaporation of moisture in the soil (up to 20-30%). Salting and brining increase the tendency to form lumps. For example, the thickness of the layer is 0.3-1.5 cm in light gray soils with dry and light loam, and 2.4-4.5 cm in soils with weakly saline loam and fine mechanical composition. The weight of sorghum on one square meter of land reaches 50-70 kg.

The device we offer belongs to the field of agricultural mechanization, in particular, during the spring planting season of crops, it deforms the clay chaff, which is formed by successive rainfalls and the surface layer of the soil up to 5-7 centimeters, and germinates seedlings. provides output. The device's low cost, quality, and easy integration of the technology of this process are much higher than the existing rough softeners.

The structure of the cotton field weeding unit, the attachment device, the device frame (1), the support wheels (3) and the 2 soil tillers (6 and 7) arranged in a row, the adapted rollers, the working column (5), the clamp (2) consists of 80-100 hp. is aggregated to a tractor equal to If the tractor is given a speed of 4-5 movement, it is possible to soften the cotton field for 12-15 times in 1 shift.

When the device moves along the edge with the help of a tractor, the adapted rollers perform the main work, that is, they fertilize the soil, which has turned into clay and straw, and as a result, the necessary conditions for plant development are created.

Through the technological process described above, we can overcome spring fires and achieve savings in cotton production, that is, repeated plantings are avoided.

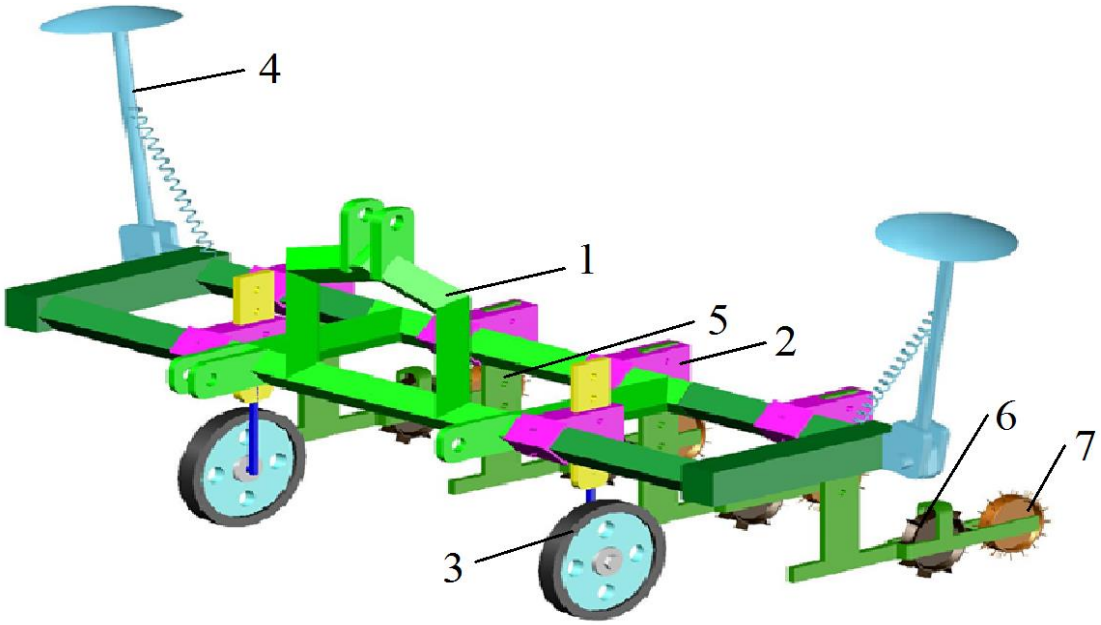

Figure 2. Working equipment for softening soil lumps

1. Machine frame, 2. Fastener, 3. Support wheels, 4. Marker, 5. Working column, 6 and 7. 2 consecutively installed customized rollers.

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