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The Effect Of Qualitified Levelling Of Sowing Area On Water Supply

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Abstract— *The following article deals with the questions of using long based leveler in high speed movements and increased width of seizure which allows to increase productivity and working quality of the aggregate and with simultaneous reduction of operating workers. Conclusions and suggestions of the given work can be effectively used for watering lands*

Keywords— leveling, grunt, leveling quality, wheel, technological process, elastic, hanging, contour, working body (blade).

1. INTRODUCTION

Irrigated lands are fertile lands in the Republic, the amount of which is more than 3.8 million hectares [4]. 98% of agricultural products in the country are grown on irrigated lands. Irrigated lands in cotton and grain-growing areas are divided into three zones according to their specific characteristics, natural and soil-climatic conditions, mechanical composition of the soil, technology of its cultivation, types of machines and agro-technical requirements. Of these, Bukhara region is included in the third climatic zone. This area includes difficult-to-cultivate and variously saline lands, which make up a large part of the total cotton area of the Republic. In order for the seeds to germinate normally in natural humidity, autumn saline washing is carried out in this area. The soil composition of the area consists of gray soil, mineral saline meadow, meadow-swamp soils, located at an unstable depth of mineral groundwater. The salinity and depth of groundwater will vary. Along with Bukhara region, this region includes lands in Central Fergana and below the second zone, as well as arable lands in Tashkent, Jizzakh, Samarkand, Syrdarya, Khorezm, Kashkadarya and Surkhandarya regions [5].

2. MAIN PART

Also, in the soil climate of Bukhara, there is no possibility to improve water conservation and land reclamation without quality leveling. In this area, the selection of leveling machines based on the relative flatness of the field and the timely and effective organization of leveling work is required [4]. Given that the relative flatness of the area is on average around 60 ... 90 percent, we can list the following advantages of the widespread use of the following basic land levelers before planting and during repeated sowing.

• Water consumption is reduced by 2 ... 2.5 times;
• Irrigation productivity increases by 4 times;
• Irrigated lands drink a flat water and the soil is irrigated at the same time;
• Soil salinization is prevented because the rise of groundwater slows down and as a result the release of salts into the surface layer is reduced;
• Quality processing between rows is provided;
• It will be possible to carry out all agro-technical measures with high quality and speed;
• crop yields increase;
• The working conditions of the mechanic will be improved;

In order to ensure that the sown areas are at the specified level of demand, it is necessary to carry out current or major (capital) leveling in a timely manner. If the methods of “stacking” and “planting” are used in leveling, it is possible to maintain a fertile layer of soil. Studies have shown that cotton yields are 4-5 centners per hectare higher in areas planted by the "plantation" method than in the normal method [2]. It should be noted that more than 90% of agricultural output is produced by irrigated farming. This situation shows that water resources are extremely important in agriculture, and their scarcity has a negative impact not only on agricultural production, but also on the entire economy of the country. One such energy-saving technique is the technology of leveling agricultural lands using improved disc softener base levelers. As we can see, the method of leveling the land with the help of disc leveling base levelers allows to carry out simultaneous softening and leveling works and save up to 15-20% of irrigation water. In disc-smoothing base levelers, the surface area of flattened fields is uniform, characterized by the absence of high-lows and good quality of the plane. As a result, the water is evenly and evenly distributed, and the soil of the crop area is completely, evenly moistened. A flat, even distribution of water helps to save it. [3] It is known that the current and operational leveling of lands in irrigated areas annually in the short term 25 ... 30% of the total land area of farms before planting in autumn and spring with long base P-2,8A, P-4, PA-3, PPA-3,1 and operational levelers with other brands of earth levelers. Although these land graders are simple in appearance, performance is technologically very complex, and their work efficiency depends on the size of the area and irregularities, and many other factors. In addition, their maneuverability is very low, the metal capacity is large, they are not adapted to supply other agricultural machinery, and they consume a lot of power during operation.

The process of technological processing of the working body of the soft disk with a softener mounted on a base leveler.

Observations of the working technology of the working body of the softening disc show that the soil pile formed in front of the shovel moves by rotating along the axis of the disc, softening it to a certain depth using the discs. During the movement of the aggregate, the discs in front of the leveling shovel are placed in half opposite each other inside the shell, ensuring that the soil pile is evenly distributed across the width of the shovel. This has a positive effect on the leveling of the leveled area. As a result of the friction of the lumps of soil rotating around the discs against each other, the large lumps are crushed and the aggregate composition of the soil planting layer is improved. The variation of the leveling unit speed from 0.69 to 2.08 m / s increases the improvement of working processes of the above device and ensures the compliance of the physical and mechanical composition of the soil with the agro-technical requirements of pre-planting irrigated lands. The change in the cross-sectional profile of the soil aggregate at different speeds of the leveling aggregate was studied during the experiment and it appears that the cross-sectional surface of the soil aggregate changes with velocity and the cross-sectional profile decreases at high velocities. This situation occurs due to the intensive loading of the soil in front of the bucket at high speeds of the unit. At low speeds, the above process is relatively slow, the softening of the soil discs is improved, and clogging of the lumps is almost not observed. The top of the pile formed by filling the top of the loosened soil shovel is relatively wide, and the soil pile is wider compared to the large speeds of the leveling aggregate at low speeds. It was also observed that at high speeds of the aggregate, when the humidity between the soil discs is not at the required level, the rotation intensity of the discs is disturbed and the smooth movement of the soil pile does not occur. This situation requires a separate study of the position of the disks relative to each other and the diameter of the disks in relation to this position.

3. Conclusion

The soft disk drive device mounted on the base leveler, prepared using the above theoretical research and analysis, shows that high leveling efficiency and low energy consumption are achieved. Based on the results of the research, it should be noted that the improvement of land reclamation is directly related to the quality of leveling, which leads to water savings in the process of self-irrigation.

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